

# KIC 007362434

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007362434-01	OBS	No	0.566748	131.864037	33.7	3.276	11.5	5.8	0.69	4624	0.43	1393.14
007362434-02	OBS	No	83.263456	196.378379	569.3	5.421	7.8	8.3	0.69	4624	1.93	1.80

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007362434-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_FEW_DIFFS—EPHEM_MATCH
007362434-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

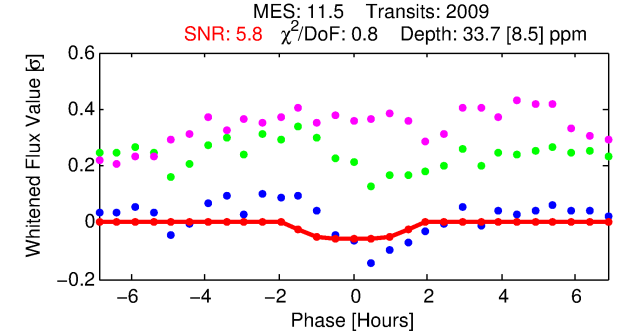
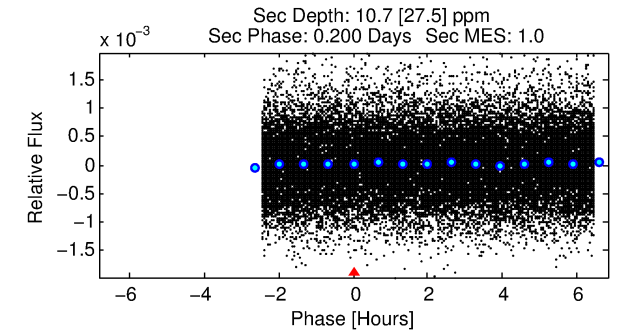
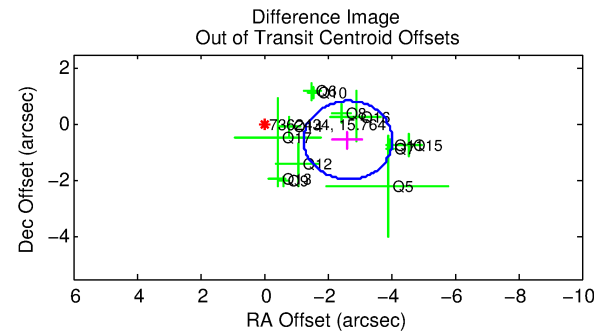
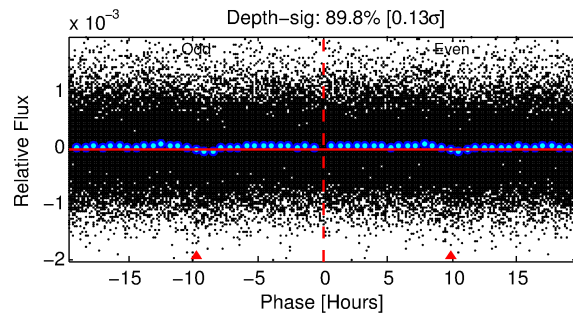
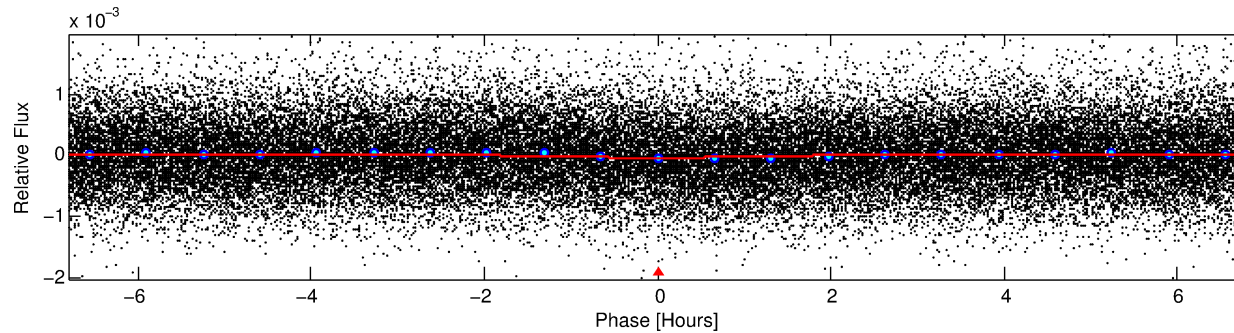
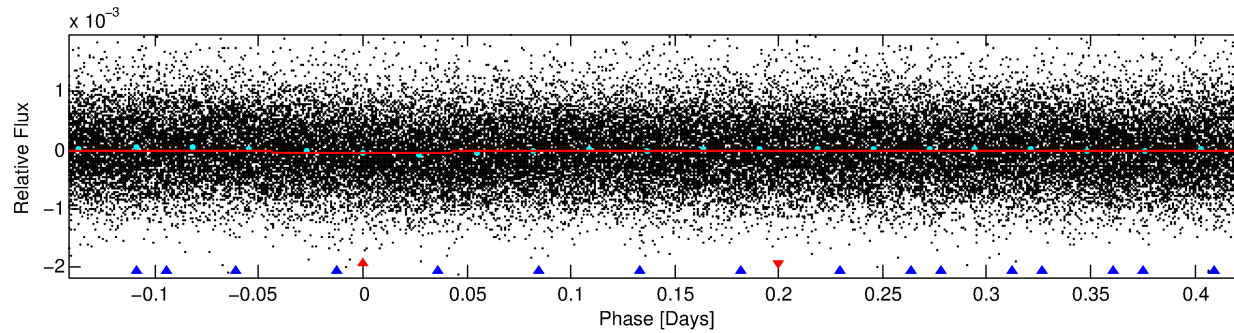
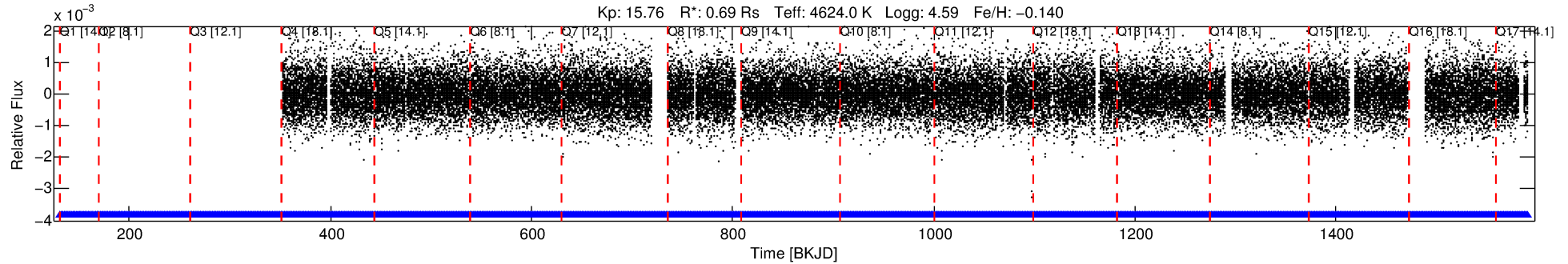
## Ephemeris Match Information For 007362434-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007362434-01	7362434	RR-Lyr-pri	7198959	1:1	971.0	2	244	7.86	15.76	18332.00	Direct-PRF	0	0.06	22.01

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7362434 Candidate: 1 of 2 Period: 0.567 d



## DV Fit Results:

Period = 0.56675 [0.00002] d  
Epoch = 131.8640 [0.0071] BKJD  
Rp/R\* = 0.0058 [0.0076]  
a/R\* = 1.25 [1.88]  
b = 0.73 [2.87]  
Seff = 1393.14 [244.73]  
Teq = 1558 [68] K  
Rp = 0.43 [0.57] Re  
a = 0.0118 [0.0009] AU  
Ag = 4.40 [16.23] [0.21 $\sigma$ ]  
Teffp = 3489 [3215] K [0.60 $\sigma$ ]

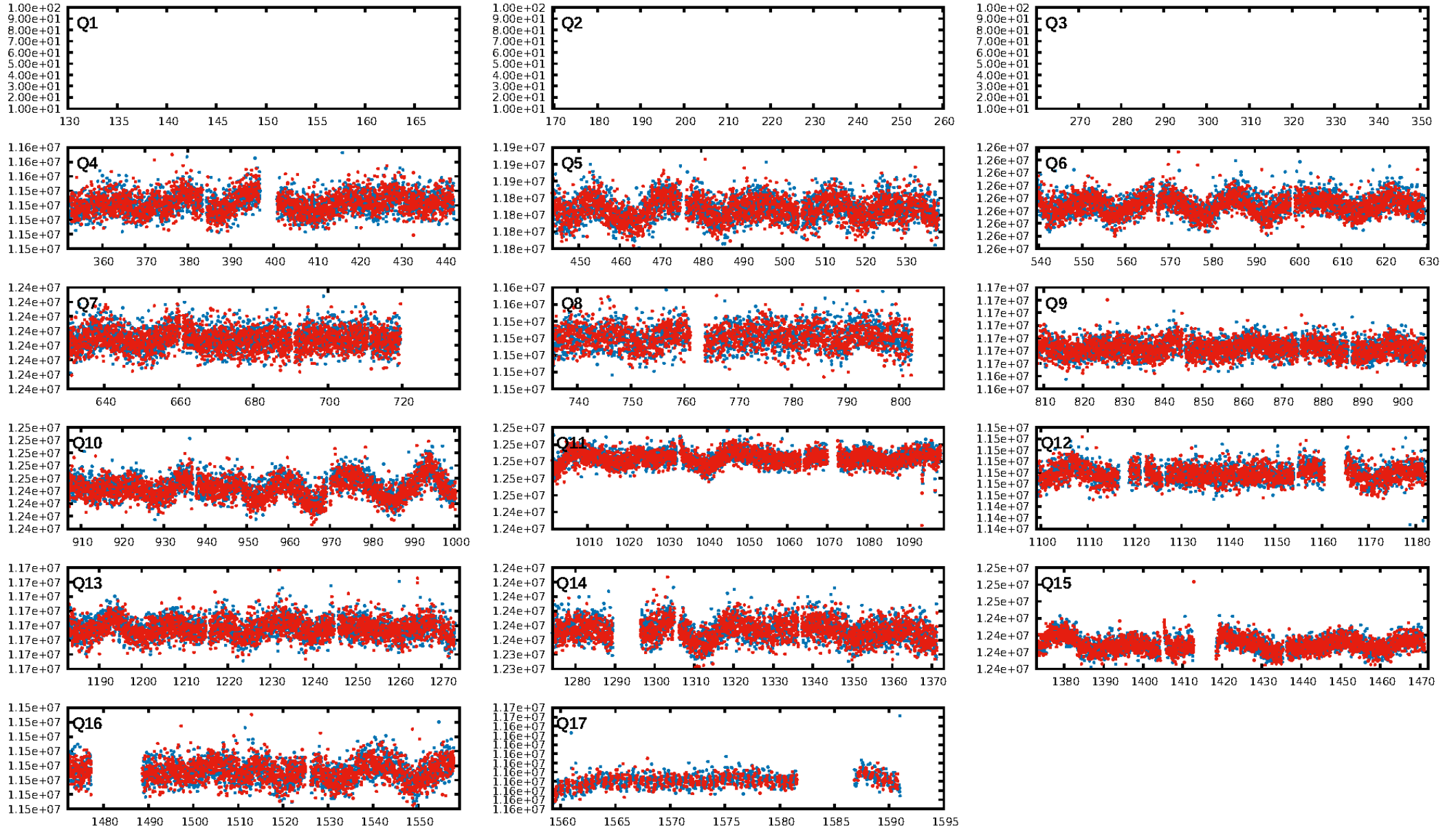
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [313.33 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.62e-25  
RollingBand-fgt: 1.00 [1962/1962]  
**GhostDiagnostic-chr: 0.658**  
Centroid-sig: 0.3%  
Centroid-so: 4.048 arcsec [2.11 $\sigma$ ]  
**OotOffset-rm: 2.698 arcsec [5.79 $\sigma$ ]**  
**KicOffset-rm: 2.698 arcsec [5.59 $\sigma$ ]**  
OotOffset-st: 3/3/3/4 [13]  
KicOffset-st: 3/3/3/4 [13]  
DiffImageQuality-fgm: 0.08 [1/13]  
DiffImageOverlap-fno: 1.00 [14/14]

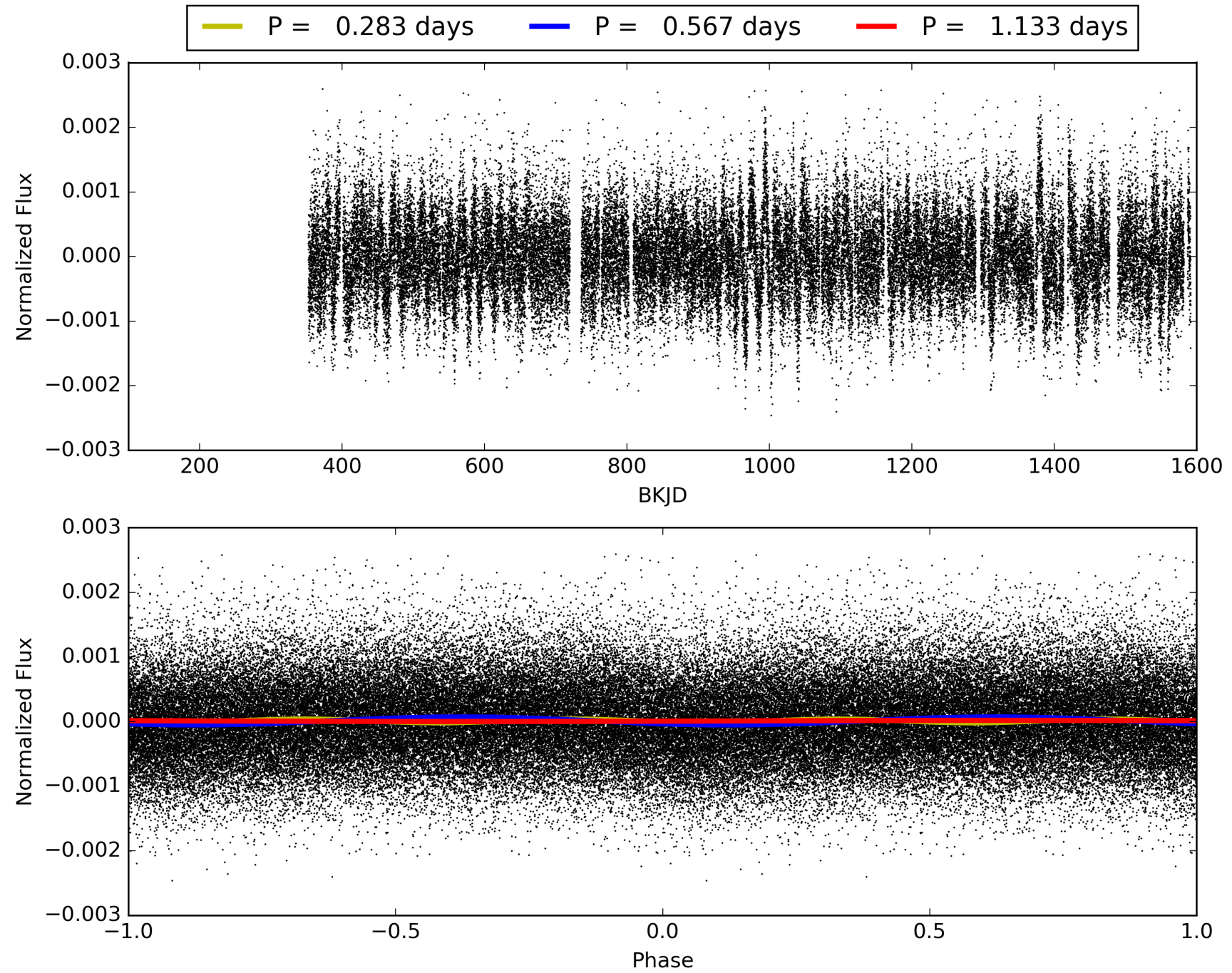
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:11:16 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007362434-01, PDC Light Curves



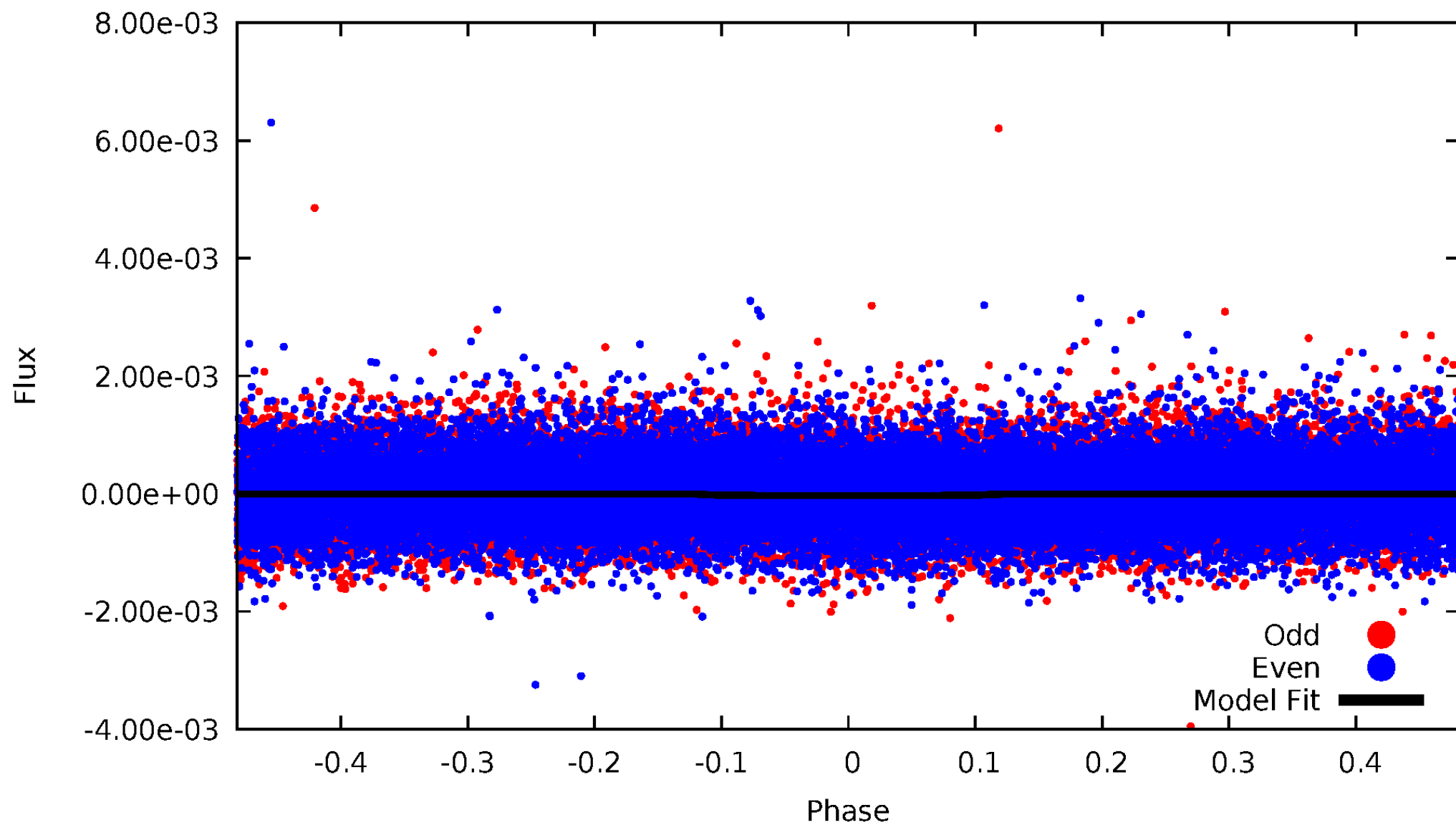
TCE 007362434-01





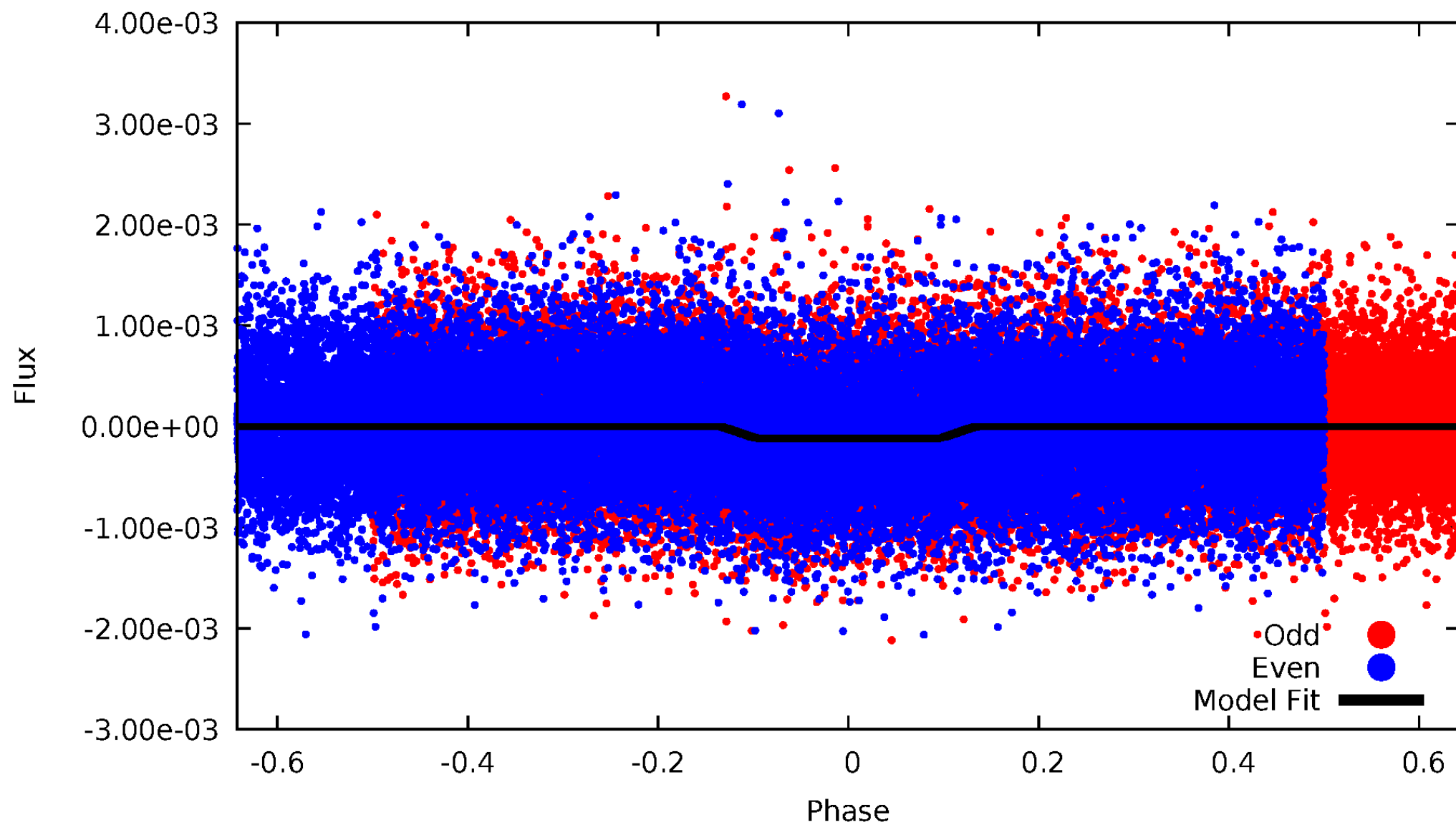
# DV Odd/Even

TCE 007362434-01



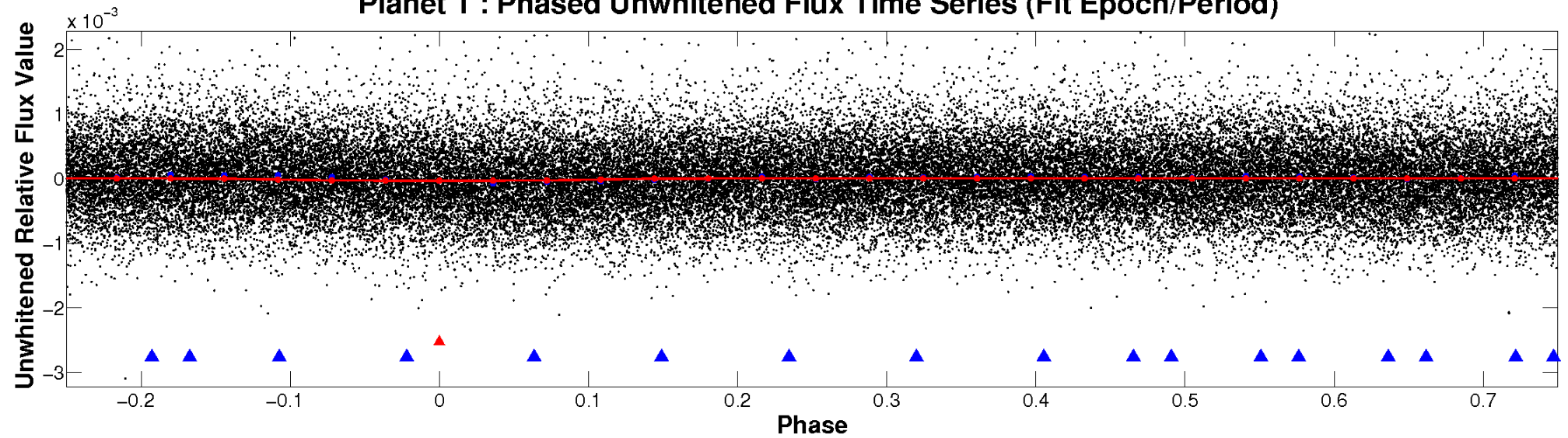
# ALT Odd/Even

TCE 007362434-01

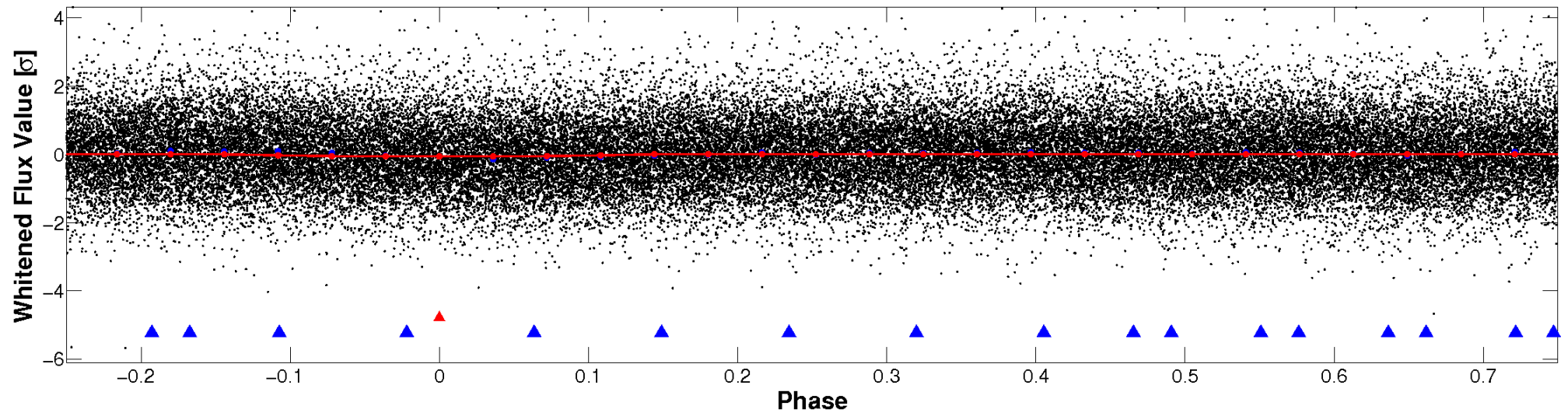


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

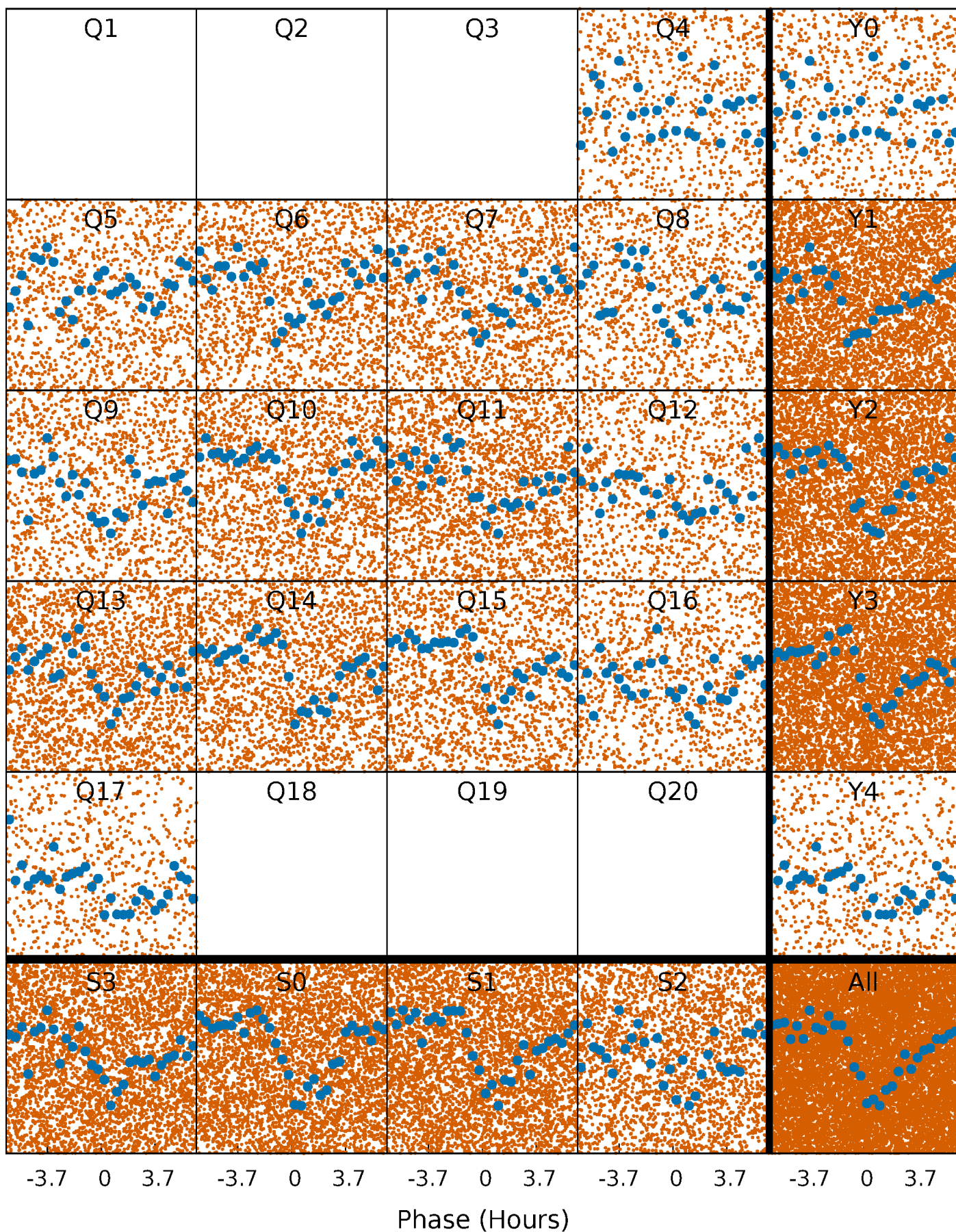


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

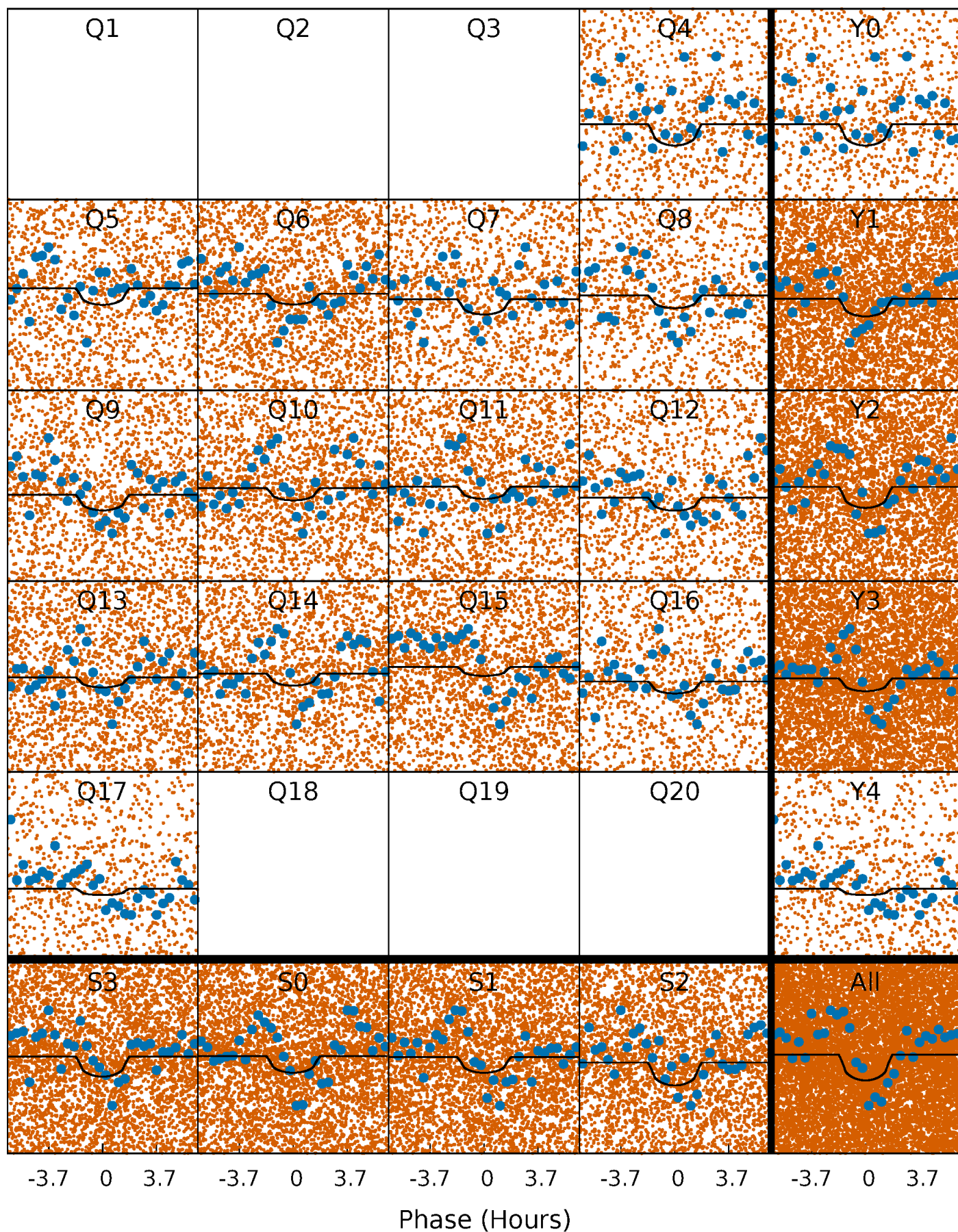
TCE 007362434-01 P= 0.566748 Days  $T_0=131.864037$  (BKJD)





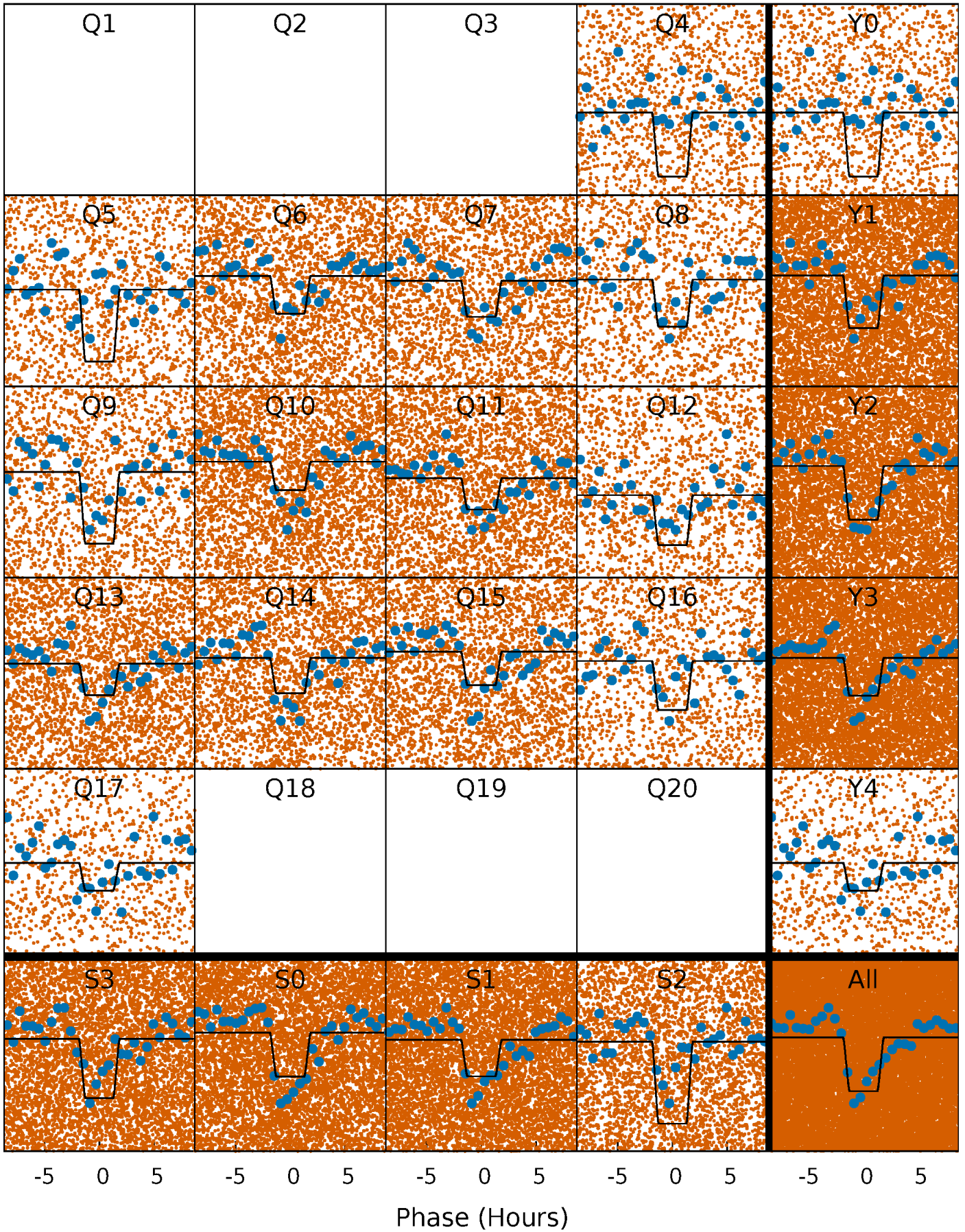
# DV Quarter-Phased Transit Curves

TCE 007362434-01 P= 0.566748 Days  $T_0=131.864037$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007362434-01 P= 0.566795 Days  $T_0=131.829236$  (BKJD)

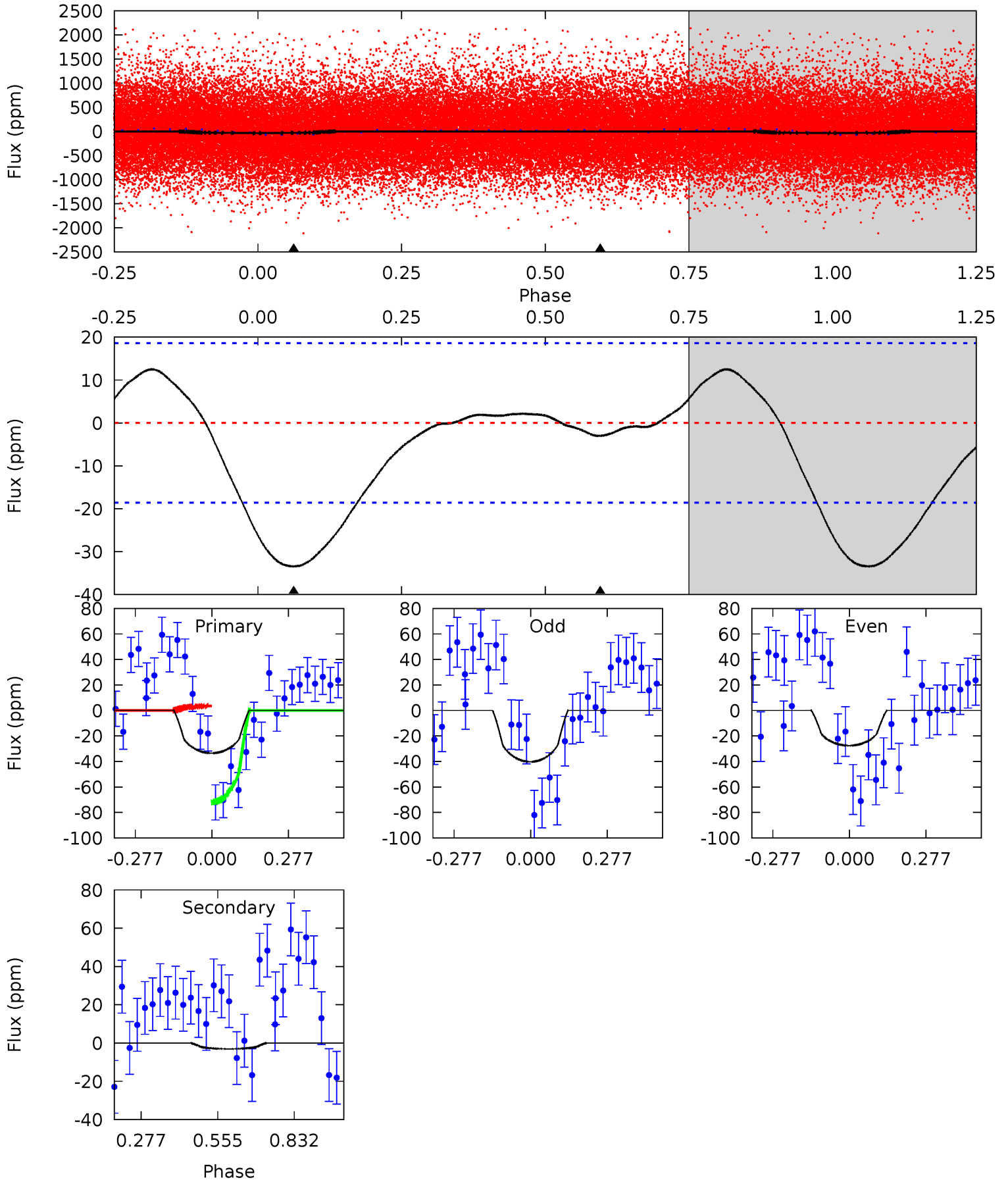




# DV Model-Shift Uniqueness Test

007362434-01, P = 0.566748 Days, E = 131.864037 Days

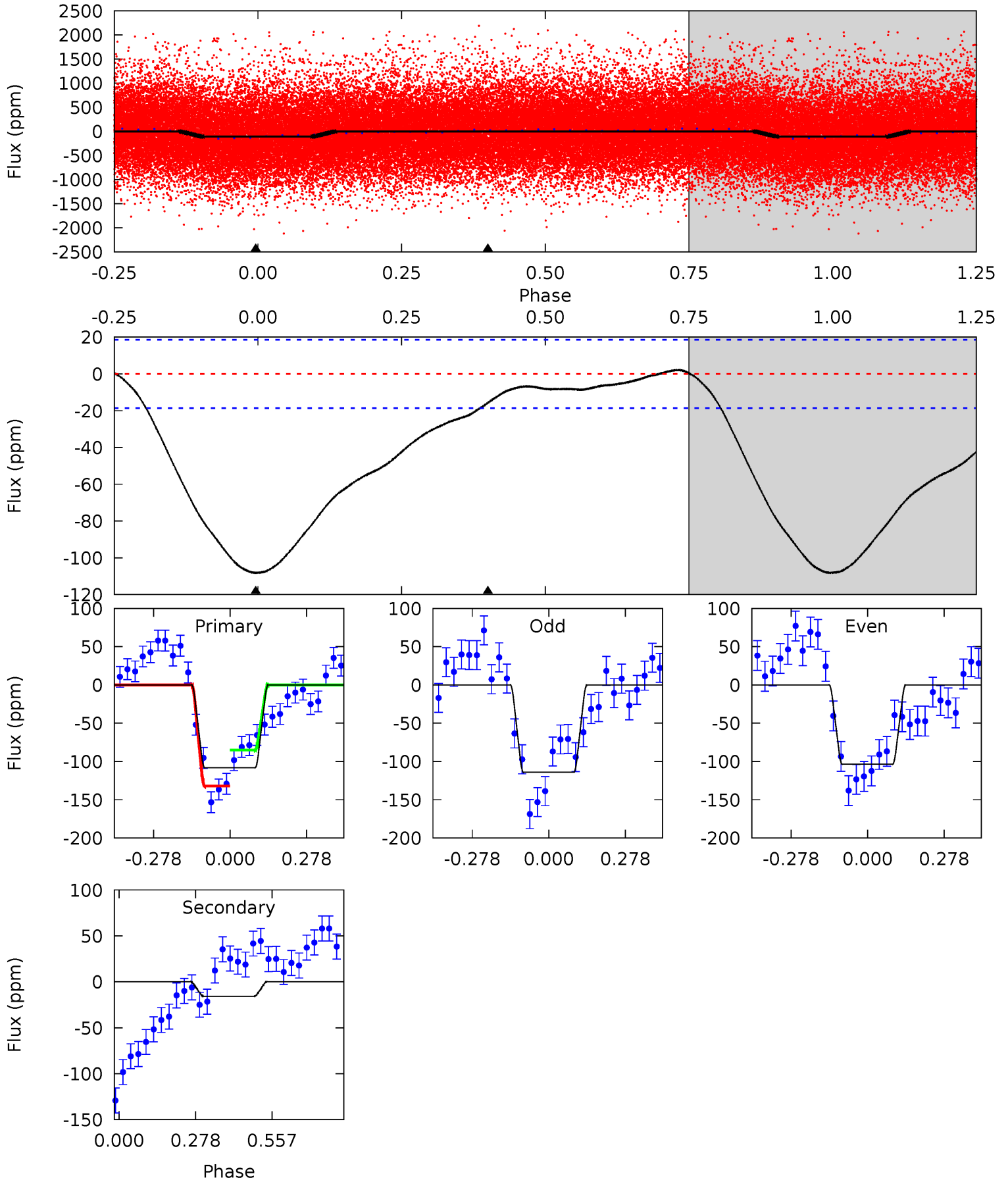
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.82	0.72	0	0	4.35	1.09	1.08	7.82	7.82	0.72	0.72	1.51	0.97	0.27	7.95



# Alt Model-Shift Uniqueness Test

007362434-01, P = 0.566795 Days, E = 131.829236 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	3.67	0	0	4.35	1.08	0.46	25.2	25.2	3.67	3.67	1.24	1.01	0.02	5.39





### Stellar Parameters For KIC 007362434

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4624^{+165}_{-165}$	$4.595^{+0.052}_{-0.028}$	$-0.140^{+0.300}_{-0.300}$	$0.686^{+0.048}_{-0.066}$	$0.677^{+0.079}_{-0.055}$	$2.954^{+0.744}_{-0.381}$
	+4%/-4%	+1%/-1%	+214%/-214%	+7%/-10%	+12%/-8%	+25%/-13%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007362434-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-3 \pm 4$	$0.59^{+0.51}_{-0.40}$	$2169^{+84}_{-99}$	$2361^{+1601}_{-5075}$	$0.458^{+5.497}_{-0.671}$
Alt.	$-16 \pm 4$	$0.88^{+0.53}_{-0.51}$	$2169^{+85}_{-80}$	$3080^{+1120}_{-590}$	$1.527^{+6.975}_{-0.972}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

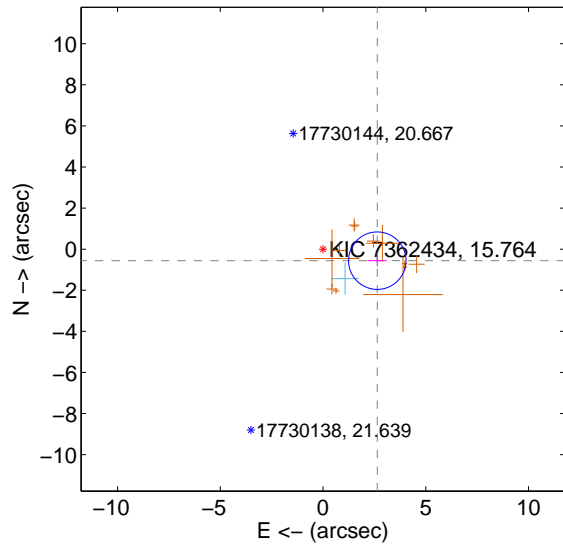
Supplemental centroid analysis for 007362434-01. Kepler magnitude: 15.76. Transit SNR 5.81

There are 1 quarters with good PRF difference image offsets

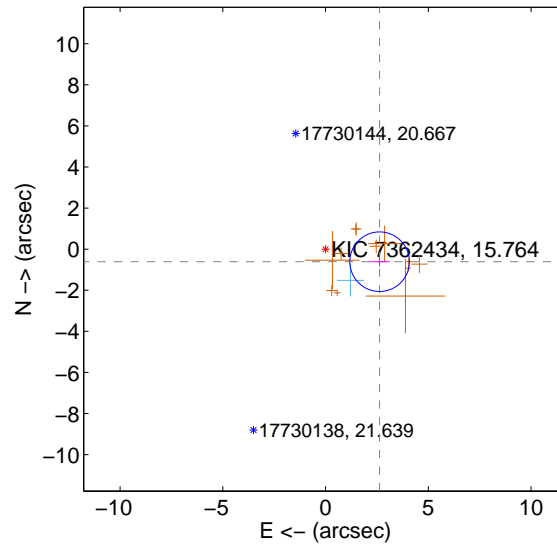
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.698 \pm 0.466$	5.79	$-2.640 \pm 0.473$	$-0.559 \pm 0.275$
PRF-fit source offset from KIC position	$2.698 \pm 0.483$	5.59	$-2.629 \pm 0.493$	$-0.609 \pm 0.235$
photometric centroid source offset	$4.05 \pm 1.92$	2.11	$-2.39 \pm 2.06$	$3.26 \pm 1.84$

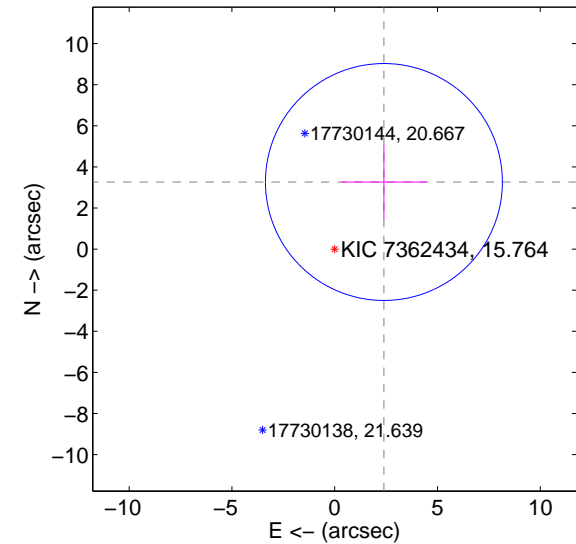
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

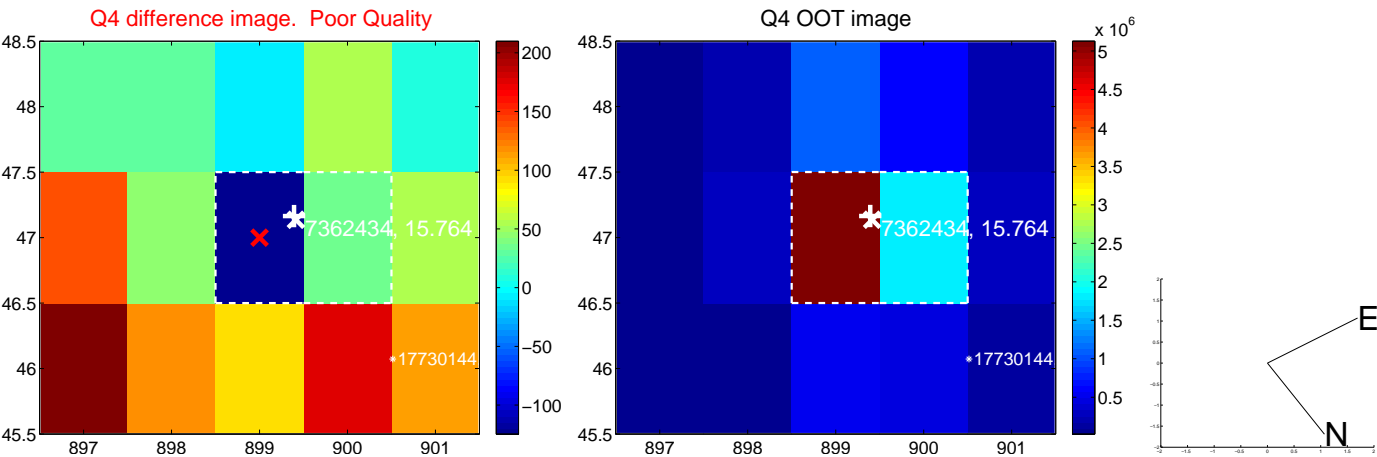


offset from photometric centroids

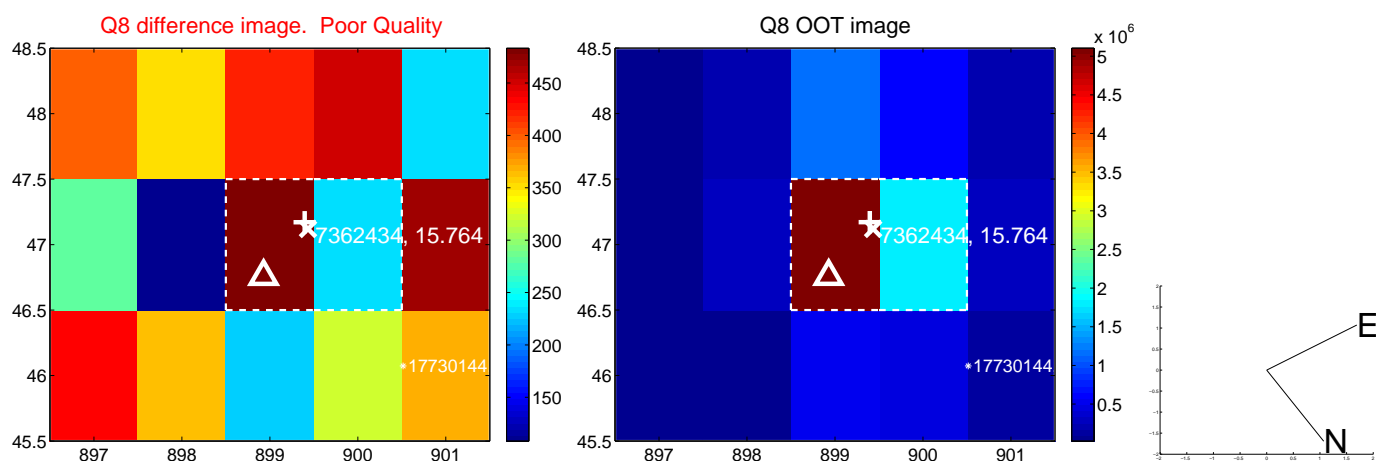
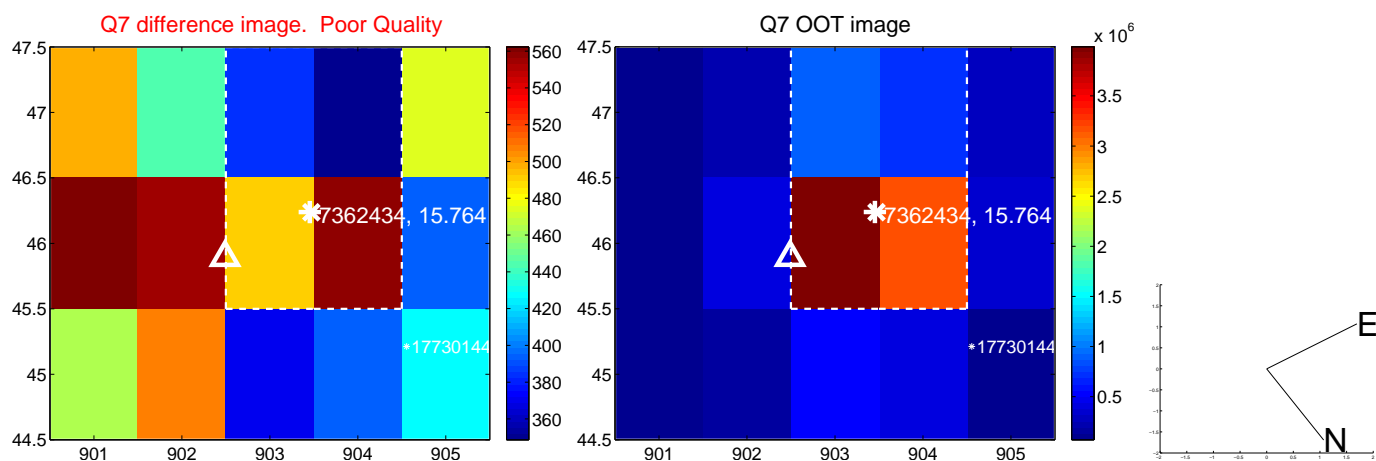
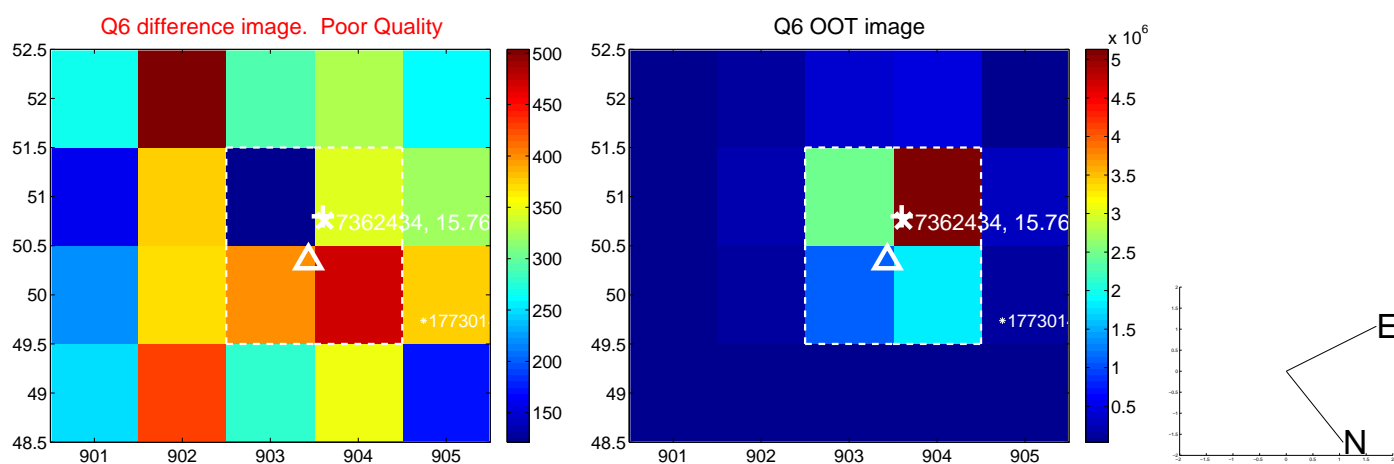
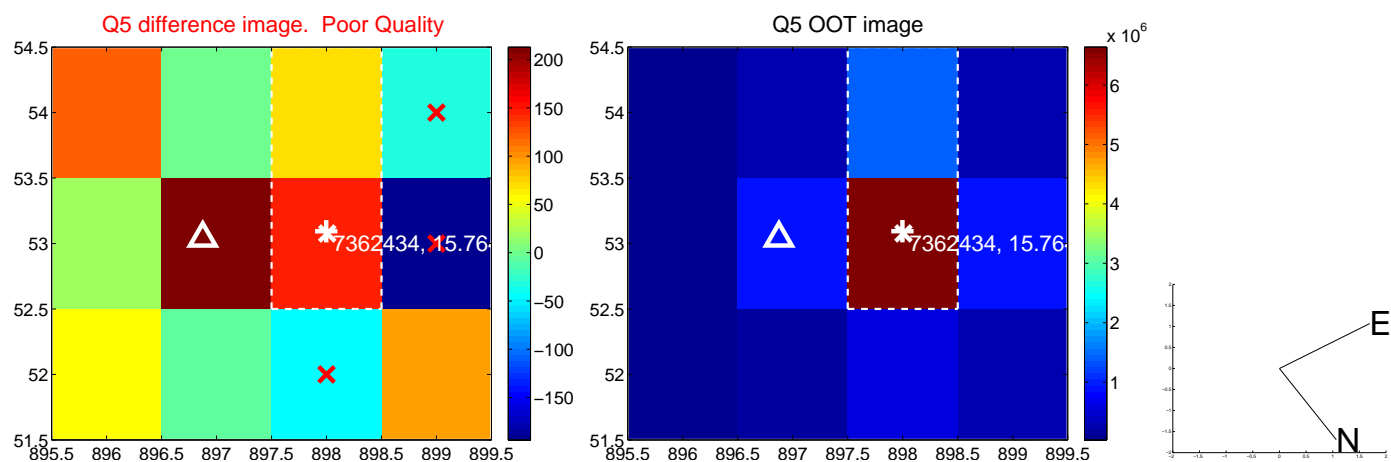


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

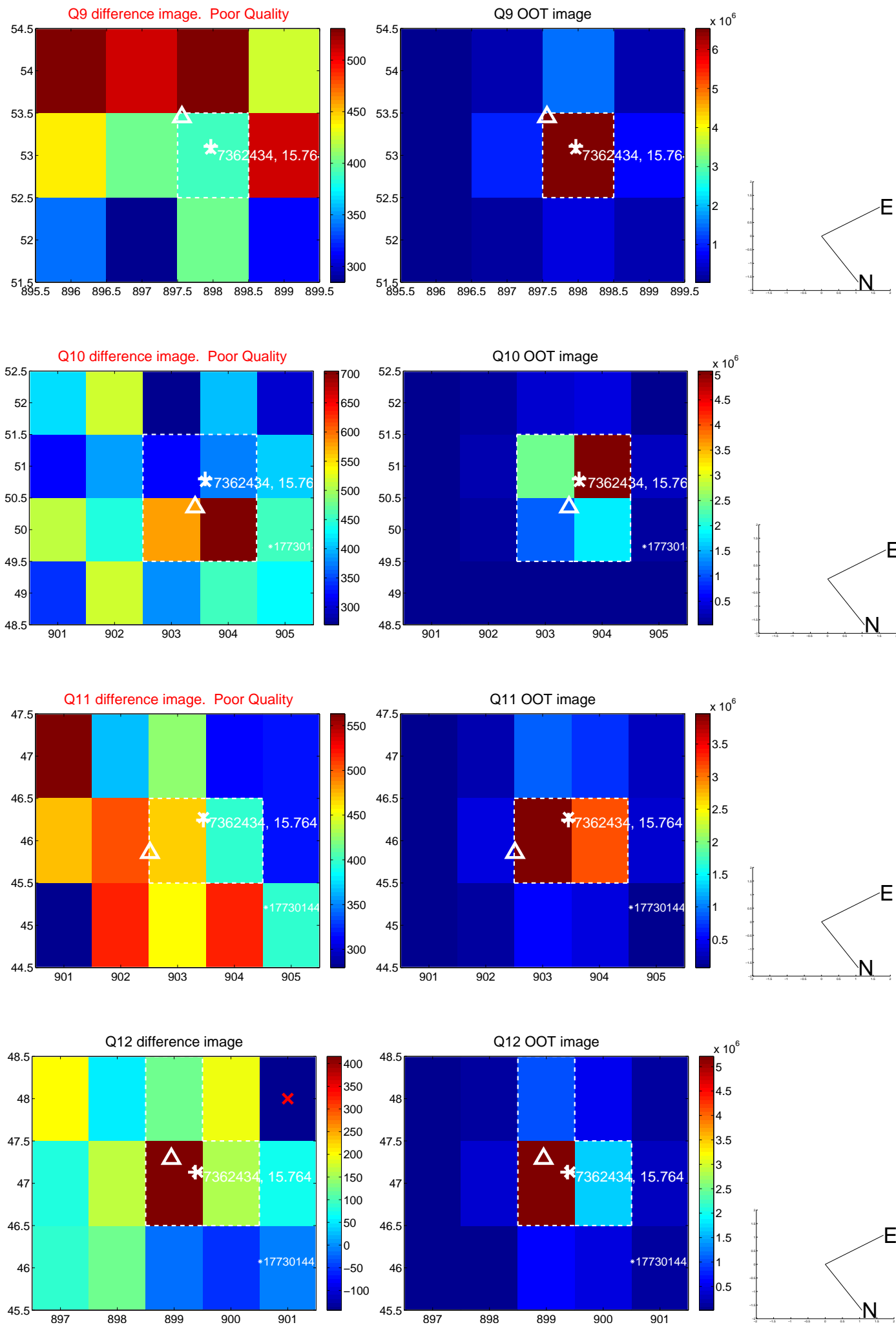


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

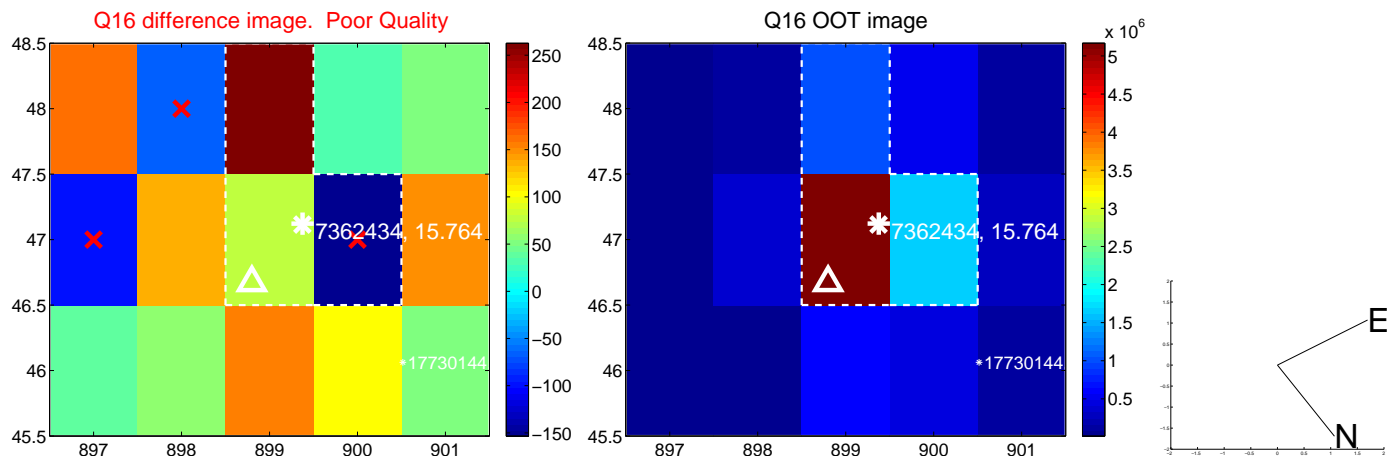
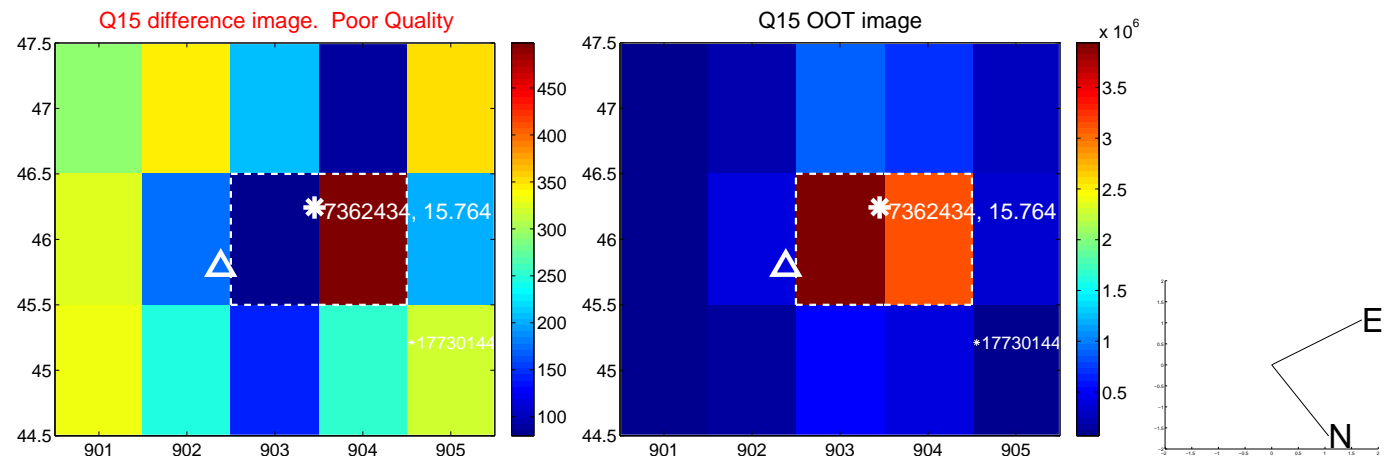
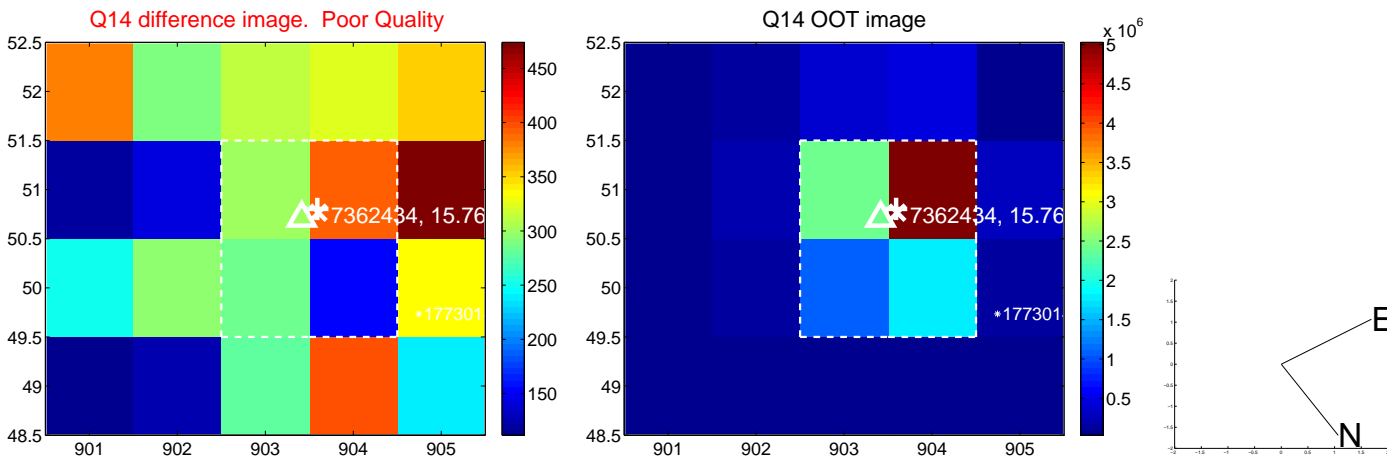
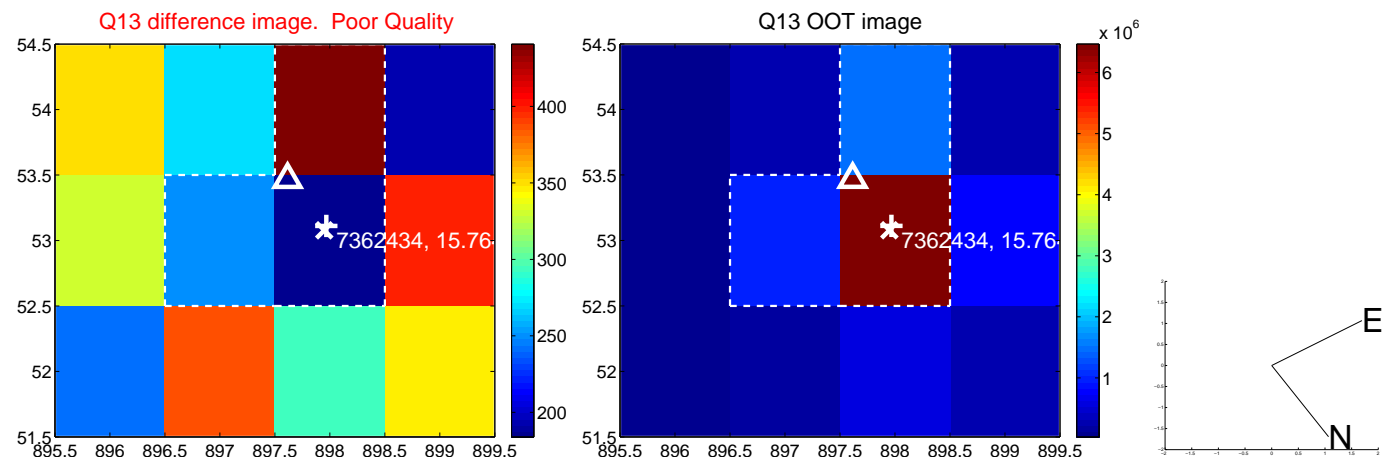




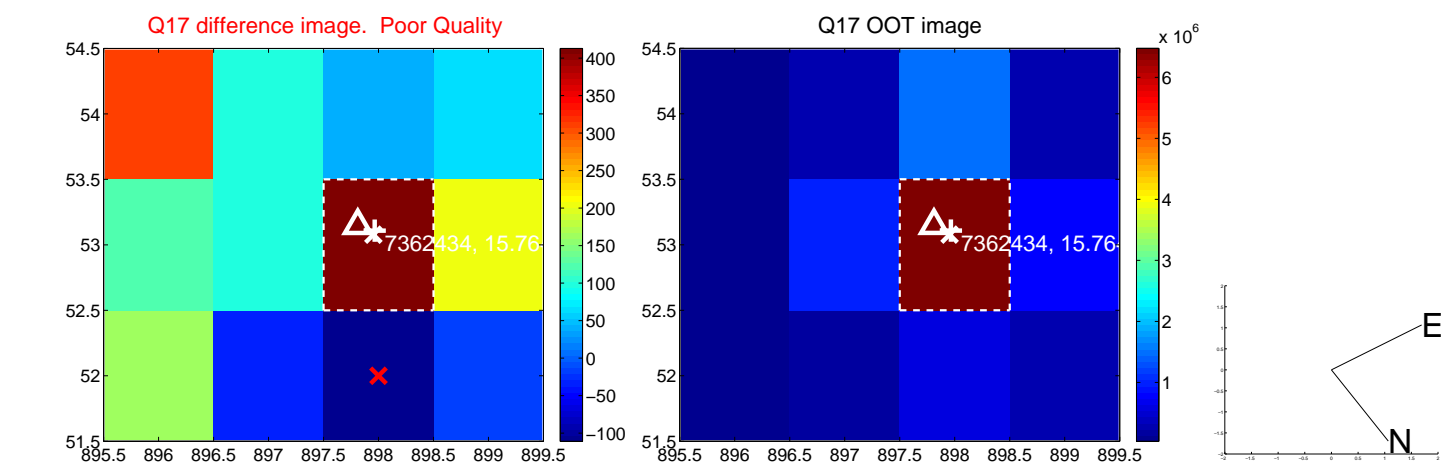
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



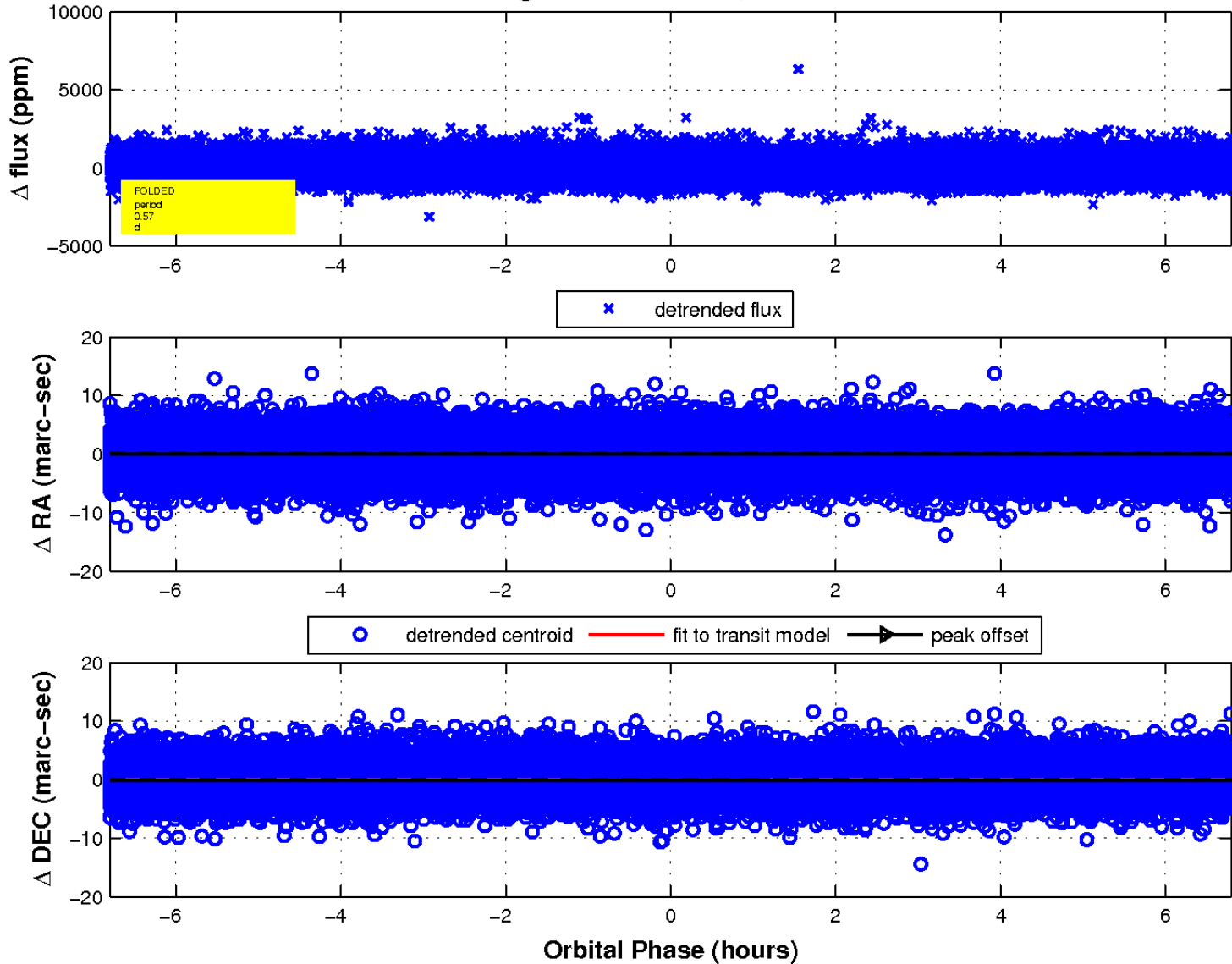
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.

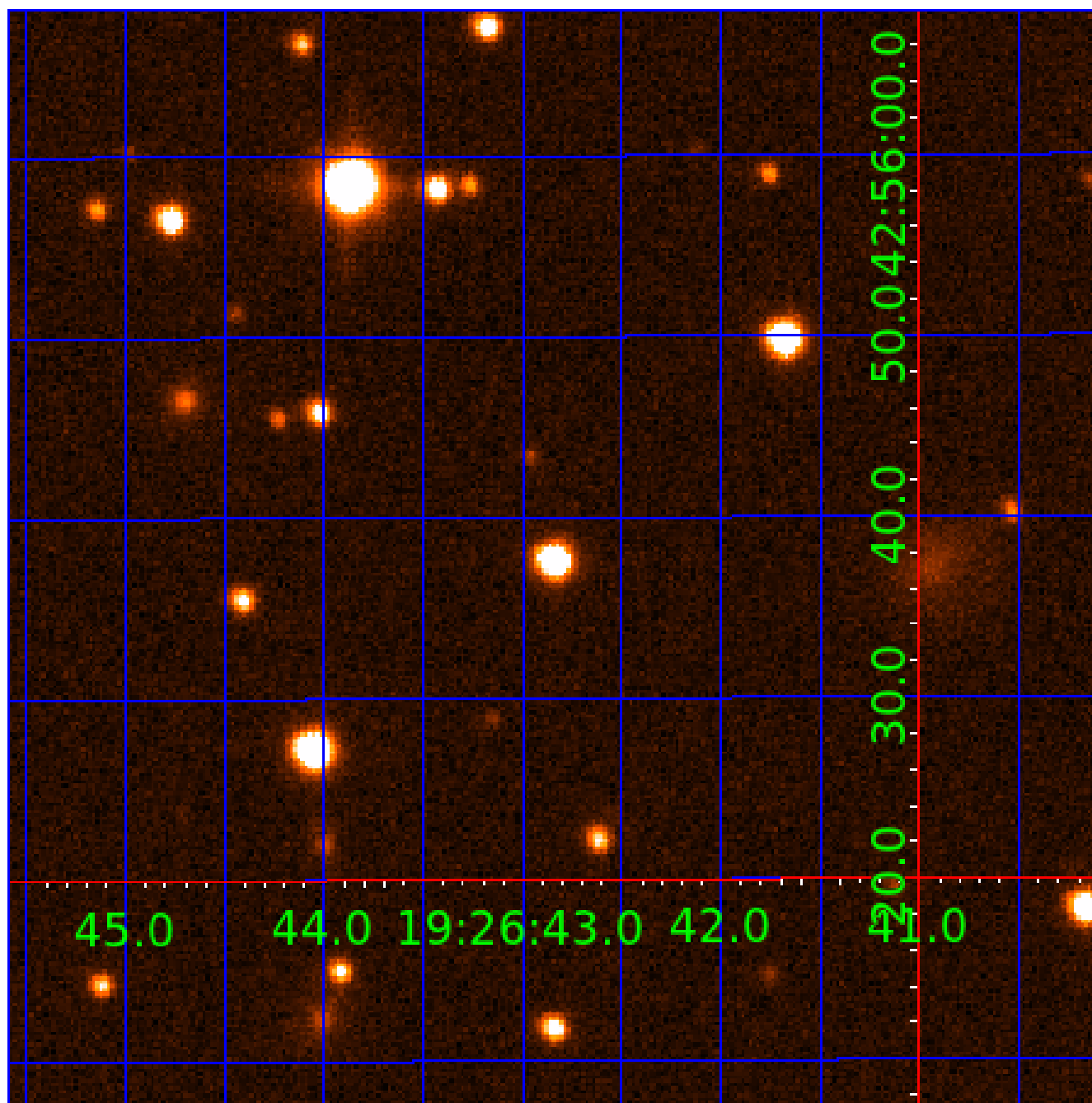


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 007362434

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007362434-01	OBS	No	0.566748	131.864037	33.7	3.276	11.5	5.8	0.69	4624	0.43	1393.14
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007362434-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_FEW_DIFFS—EPHEM_MATCH
007362434-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

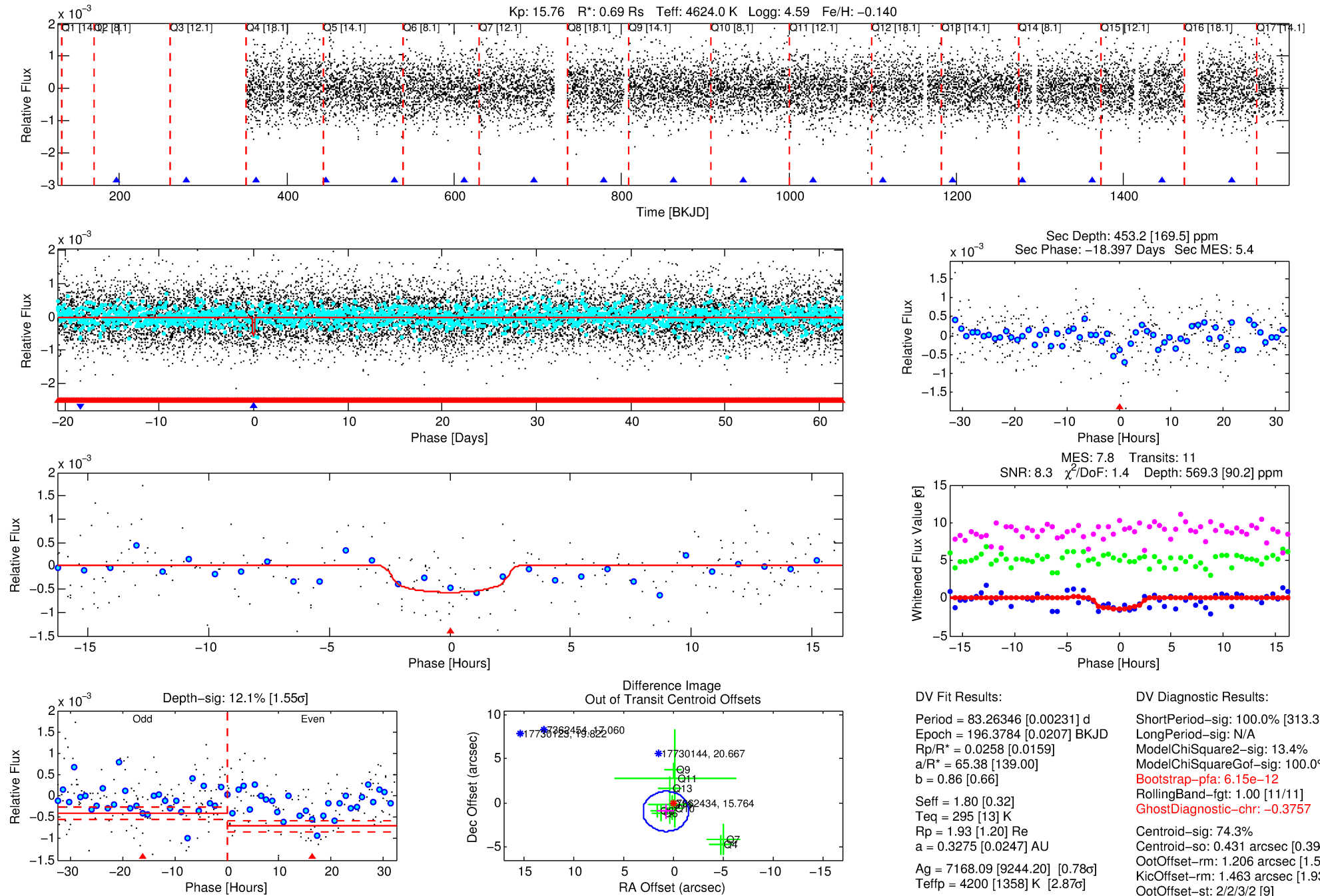
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007362434-02

No Significant Match Found

# DV One-Page Summary

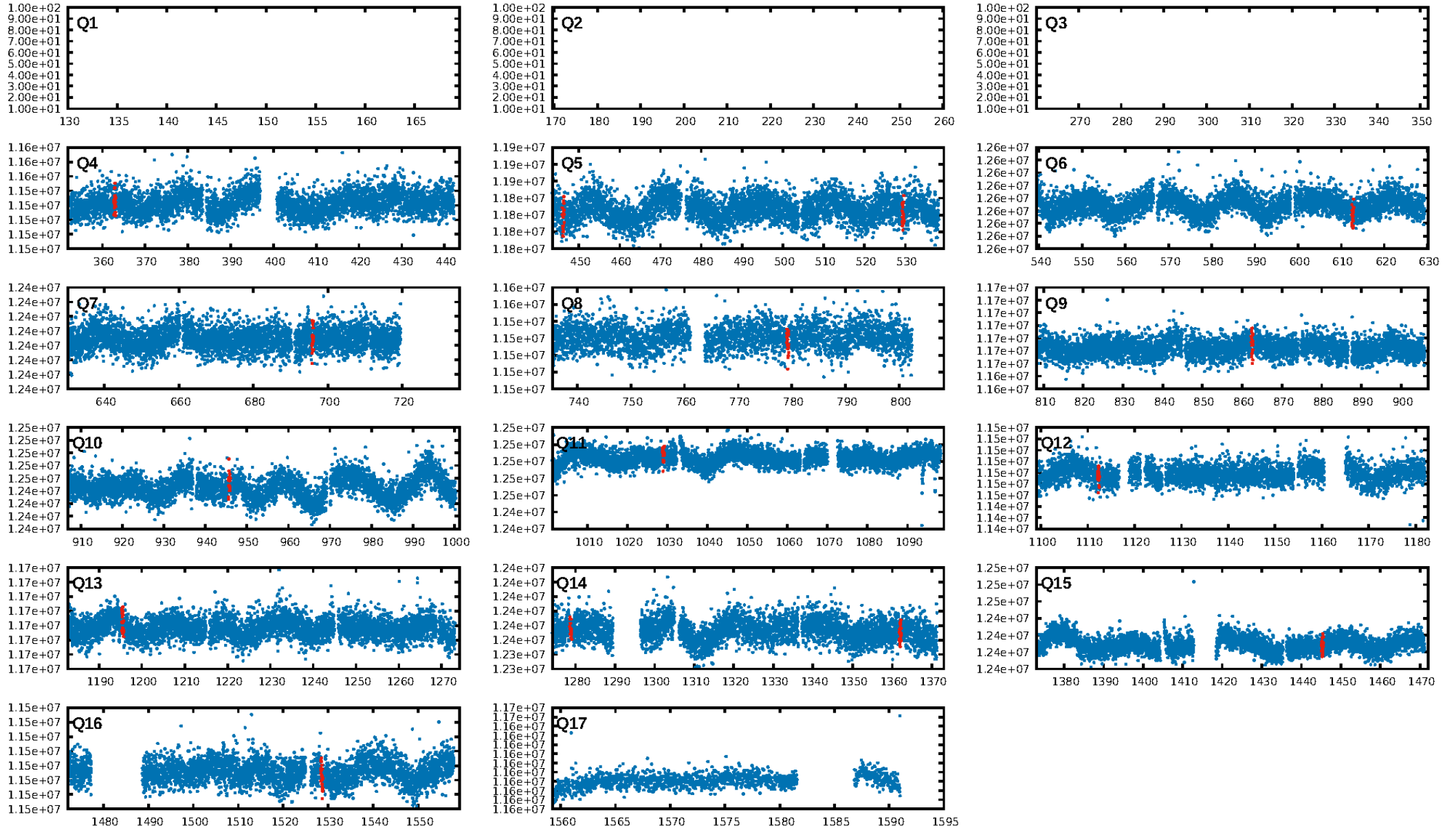
KIC: 7362434 Candidate: 2 of 2 Period: 83.263 d



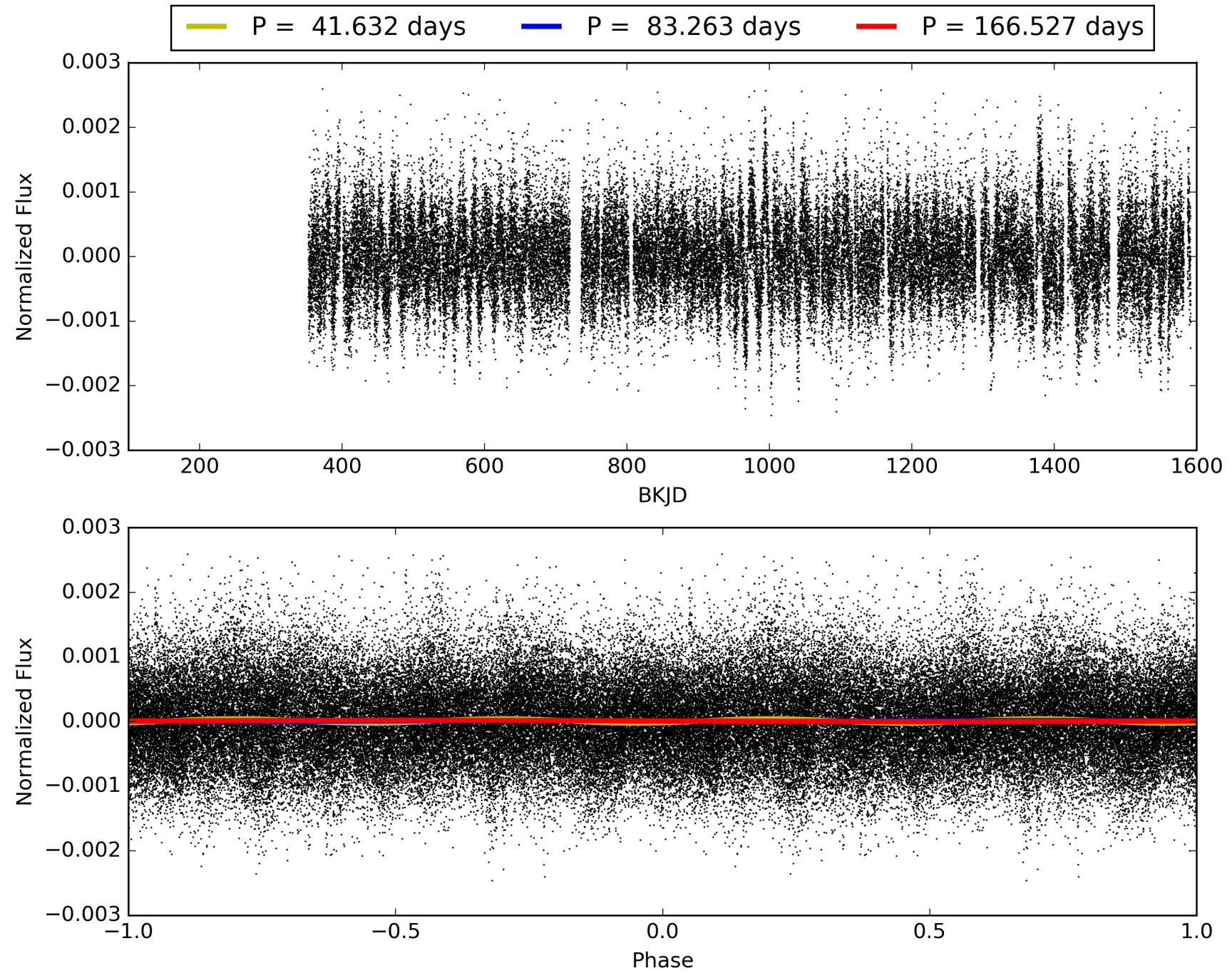
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:11:26 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007362434-02, PDC Light Curves



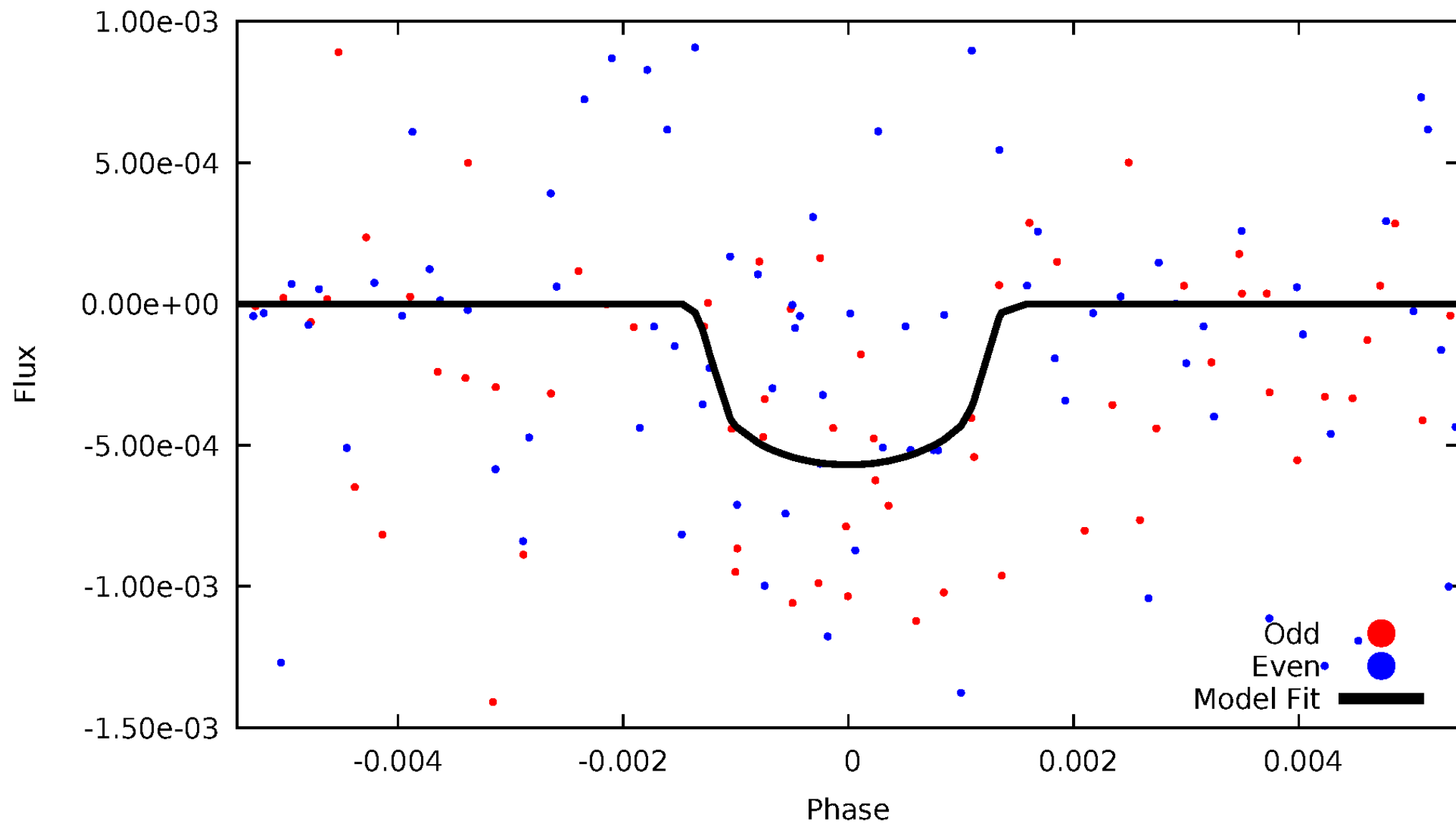
TCE 007362434-02





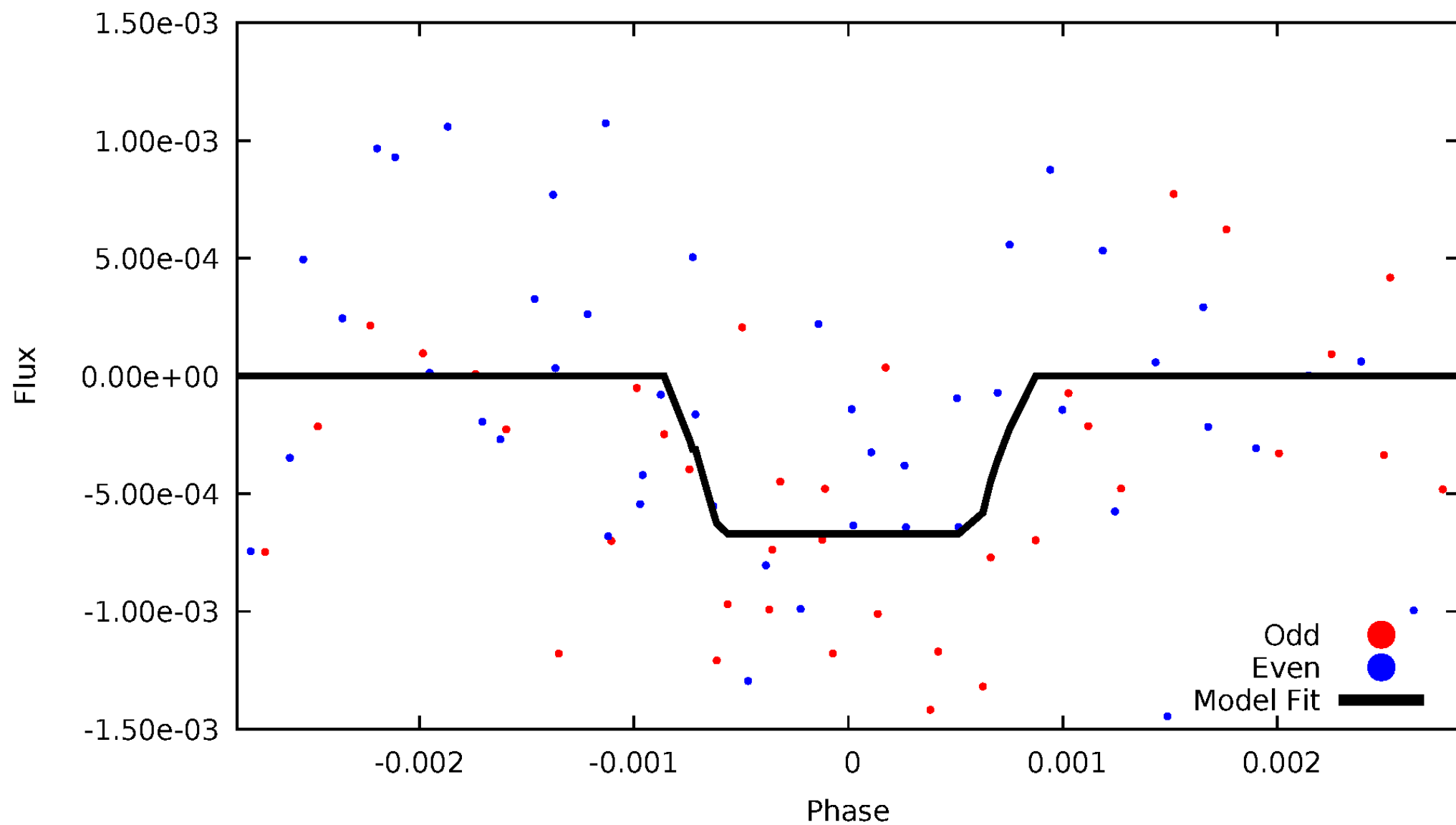
# DV Odd/Even

TCE 007362434-02



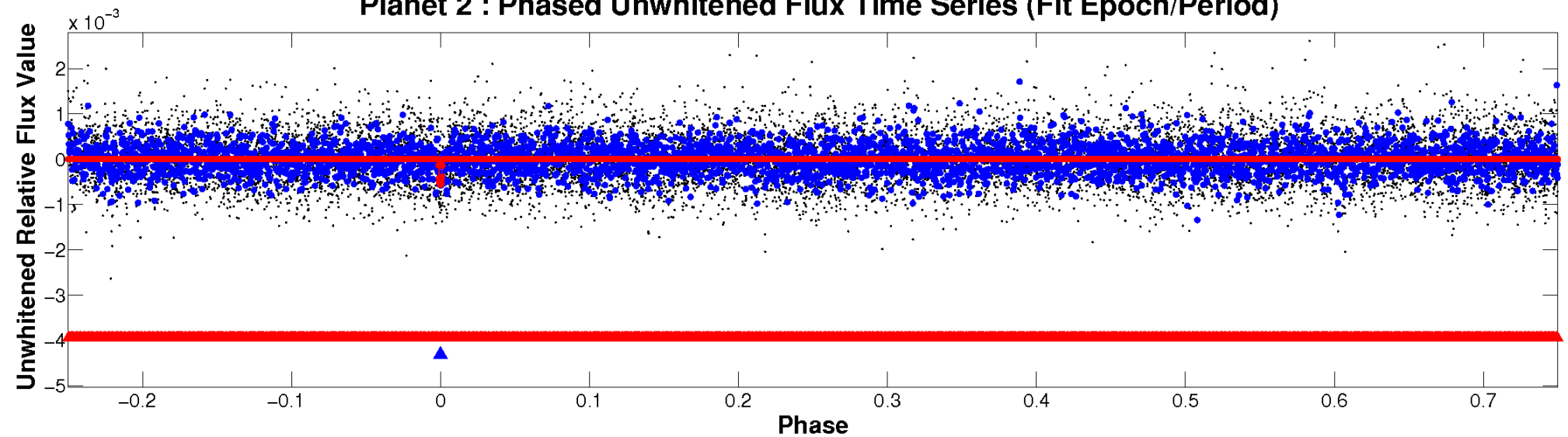
# ALT Odd/Even

TCE 007362434-02

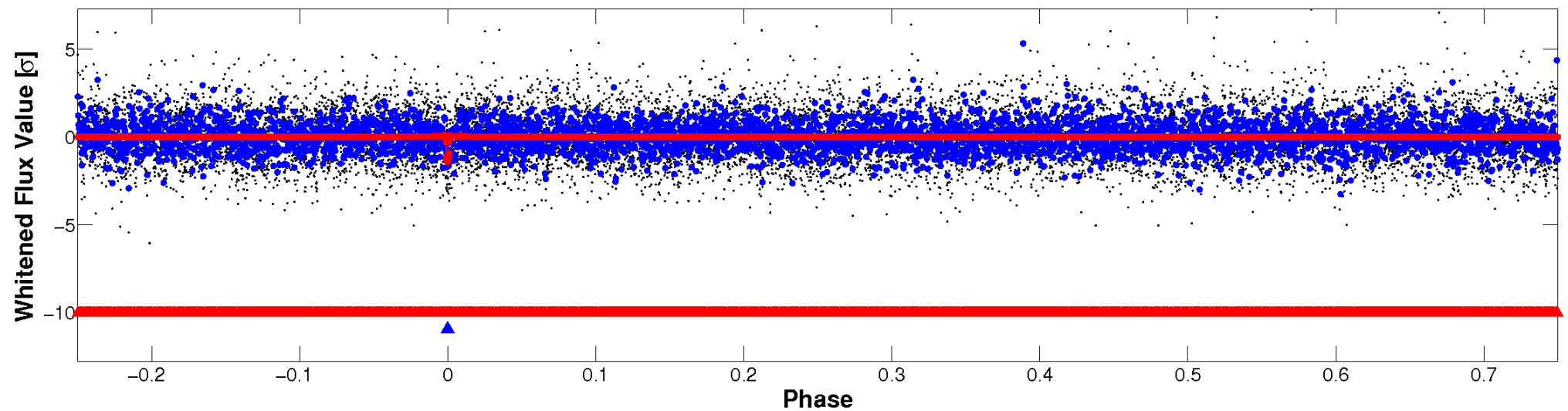


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

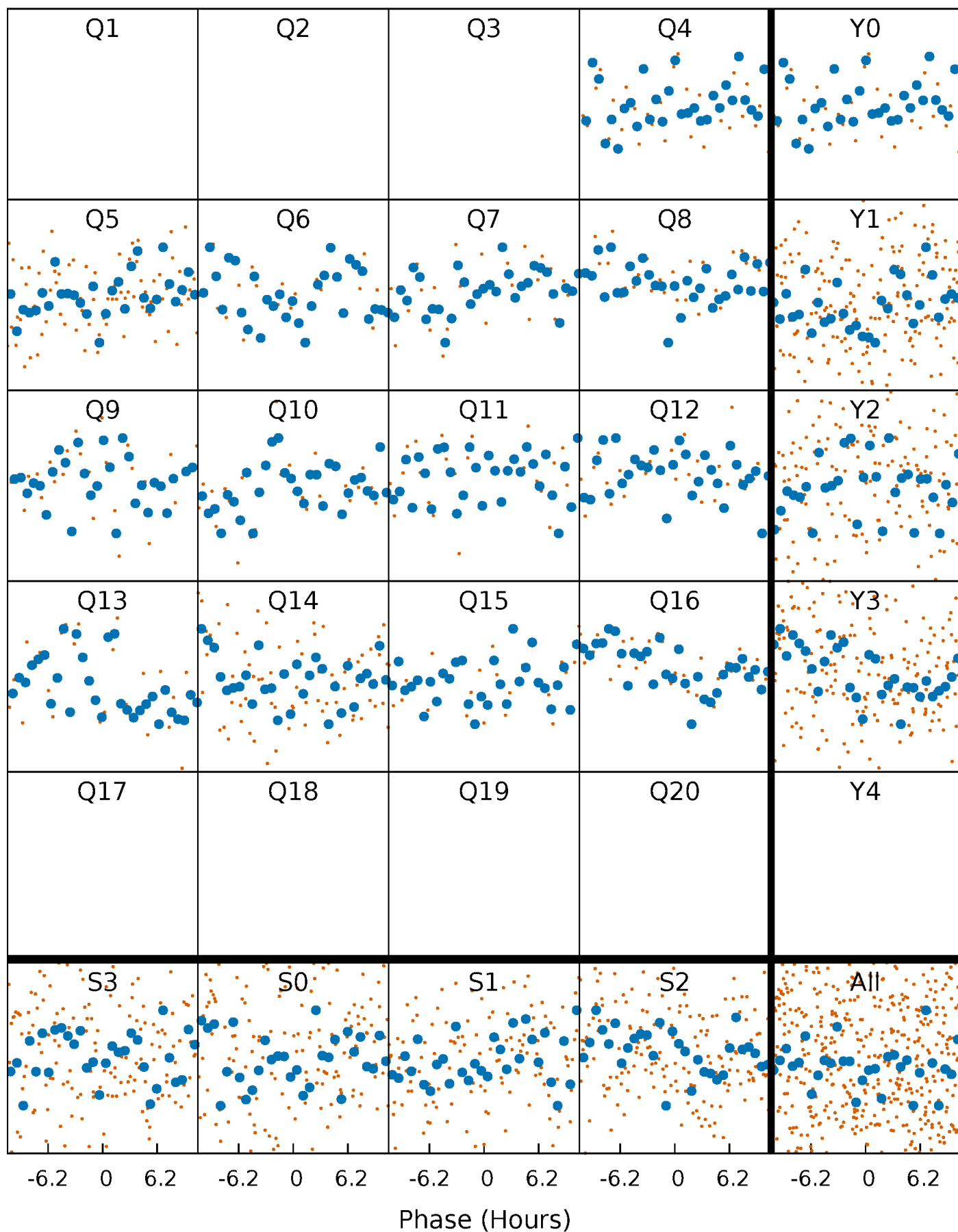


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



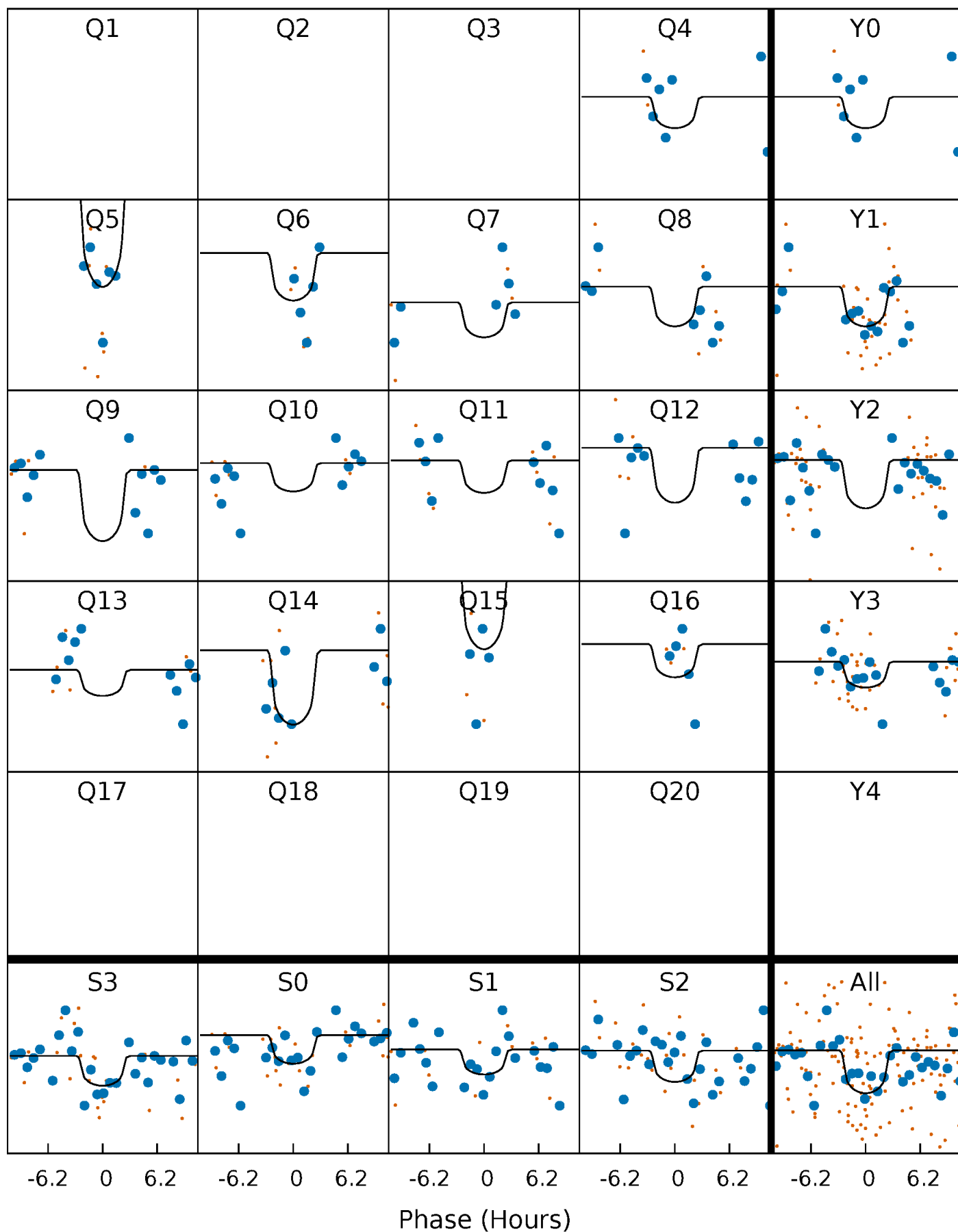
# PDC Quarter-Phased Transit Curves

TCE 007362434-02   P= 83.263456 Days    $T_0=196.378379$  (BKJD)



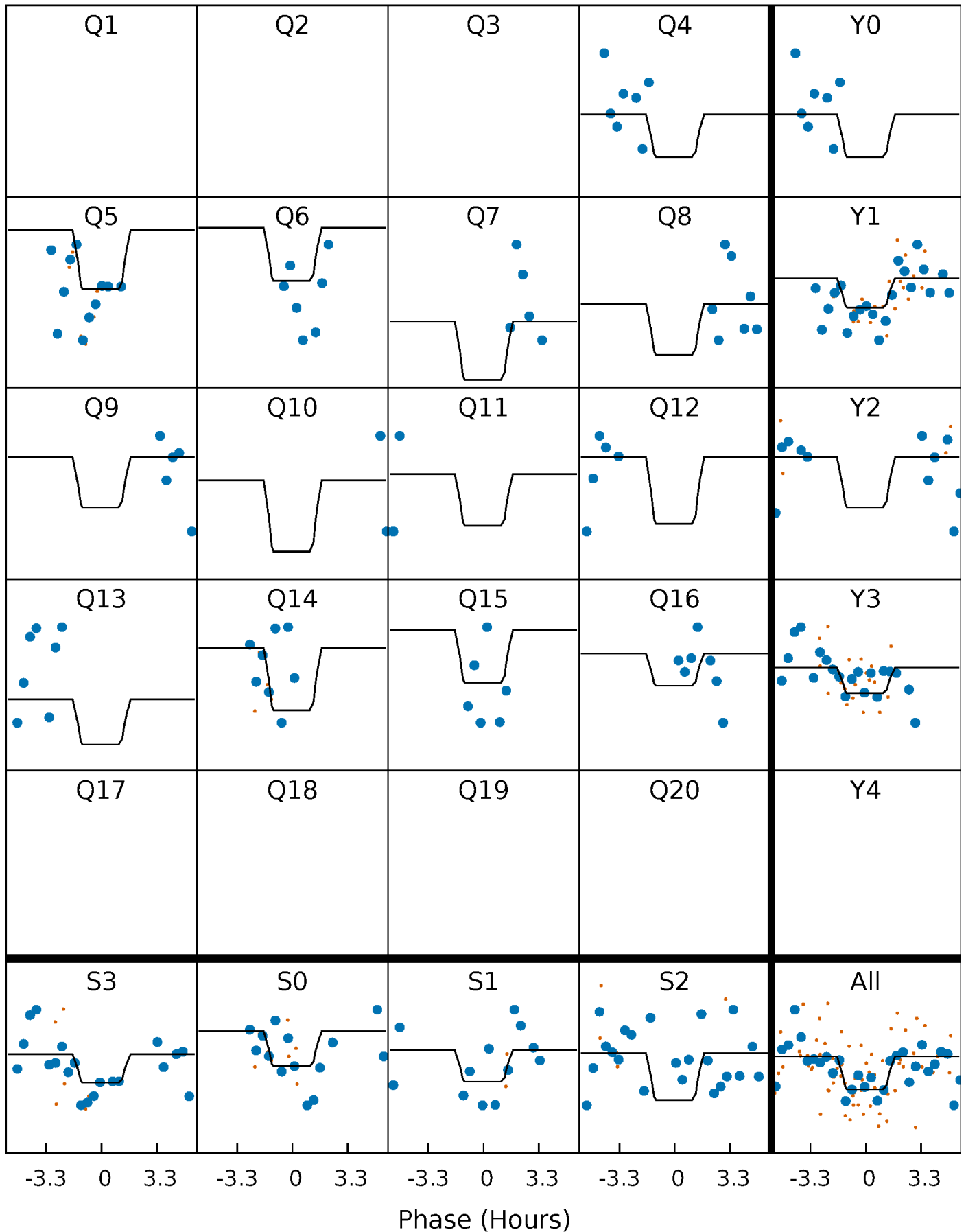
# DV Quarter-Phased Transit Curves

TCE 007362434-02   P= 83.263456 Days    $T_0=196.378379$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007362434-02 P= 83.258103 Days  $T_0=196.423430$  (BKJD)

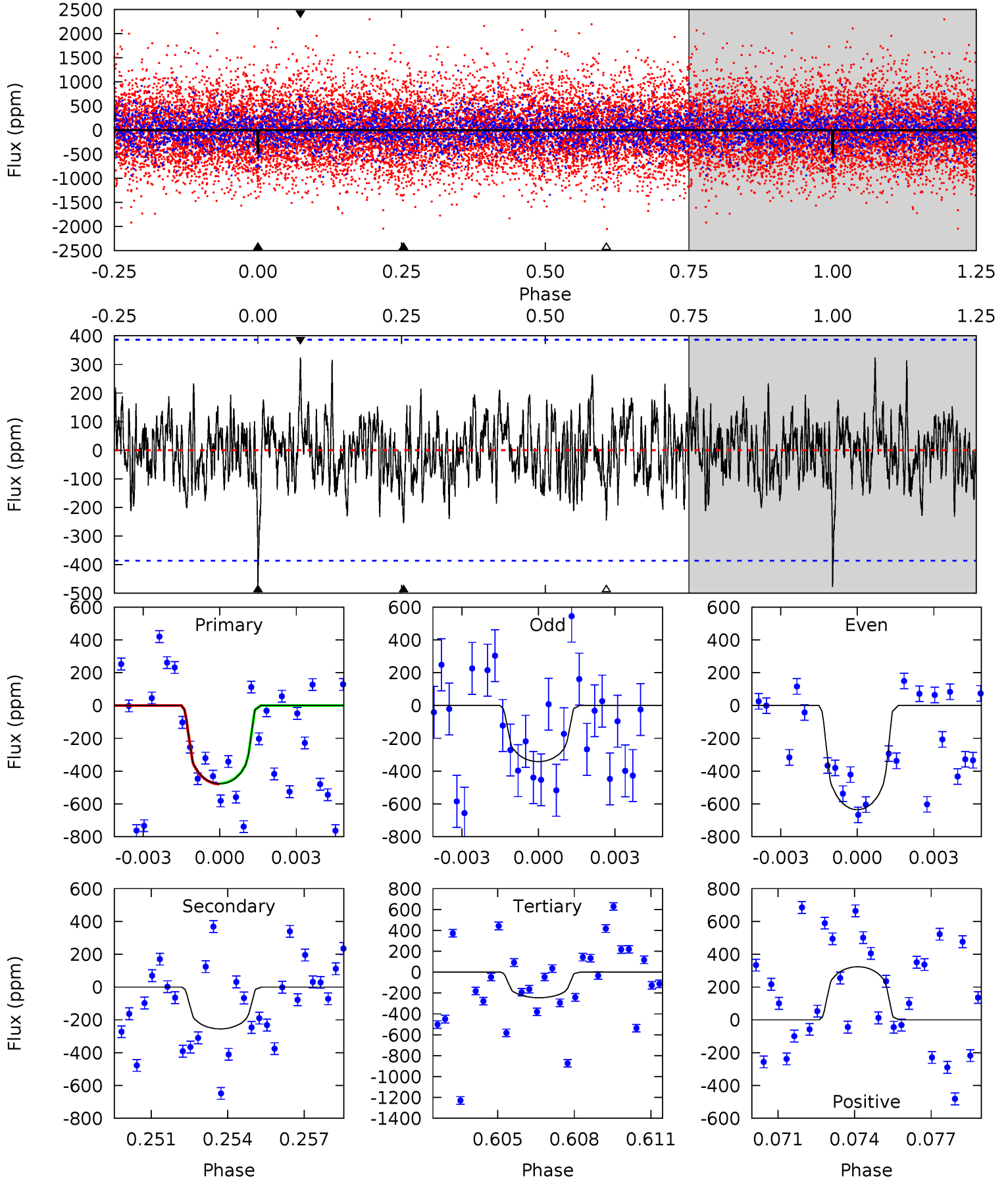




# DV Model-Shift Uniqueness Test

007362434-02, P = 83.263456 Days, E = 196.378379 Days

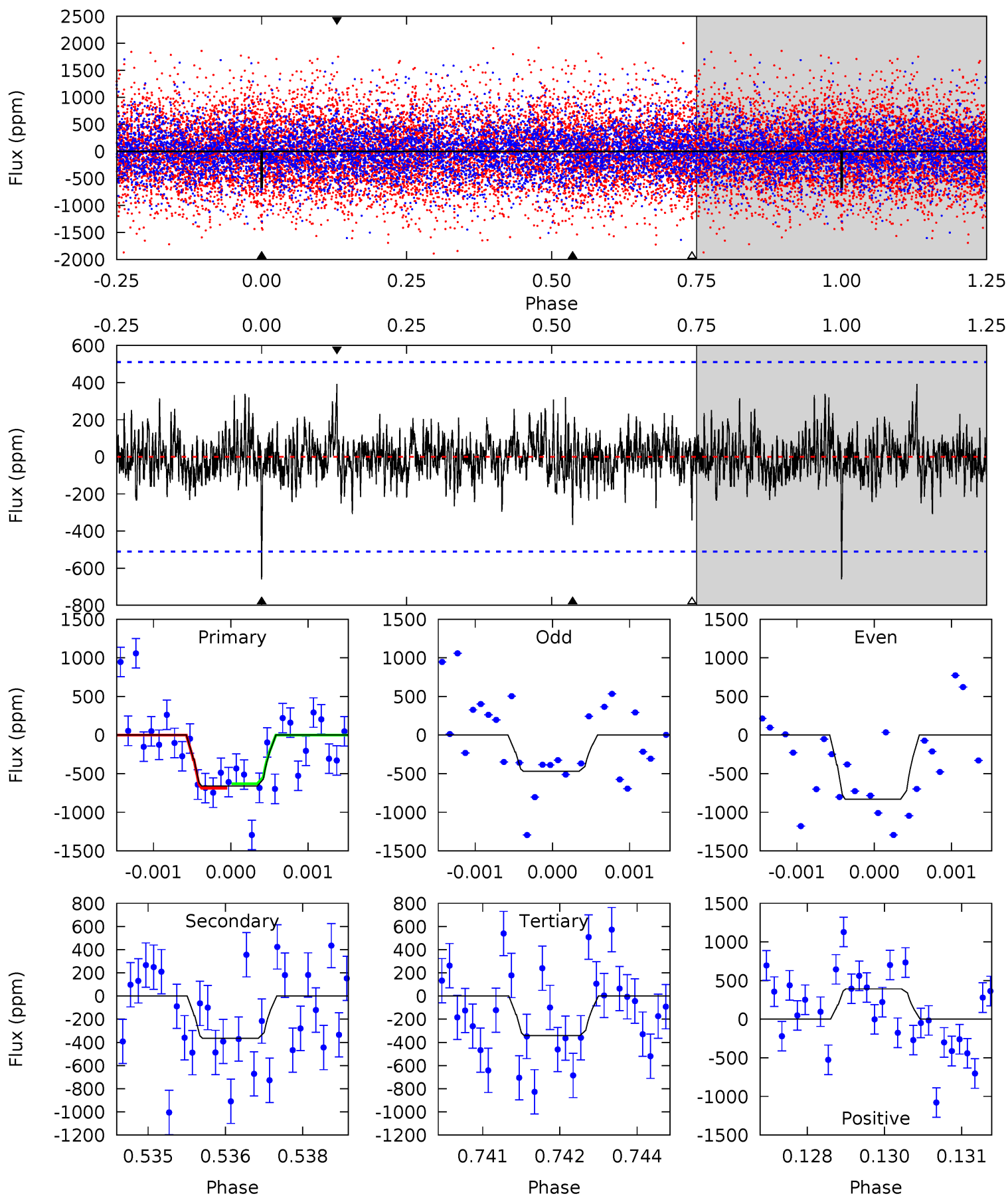
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.50	3.47	3.33	4.41	5.26	2.97	1.21	3.16	2.09	0.14	-0.93	1.99	0.69	0.40	0.03



# Alt Model-Shift Uniqueness Test

007362434-02, P = 83.258103 Days, E = 196.423430 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.96	3.85	3.61	4.14	5.38	3.18	0.99	3.35	2.82	0.25	-0.28	1.93	0.74	0.37	0.30



### Stellar Parameters For KIC 007362434

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4624^{+165}_{-165}$	$4.595^{+0.052}_{-0.028}$	$-0.140^{+0.300}_{-0.300}$	$0.686^{+0.048}_{-0.066}$	$0.677^{+0.079}_{-0.055}$	$2.954^{+0.744}_{-0.381}$
	+4%/-4%	+1%/-1%	+214%/-214%	+7%/-10%	+12%/-8%	+25%/-13%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007362434-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-255 \pm 73$	$2.02^{+1.08}_{-1.12}$	$410^{+17}_{-14}$	$3810^{+1357}_{-574}$	$3616^{+14303}_{-2229}$
Alt.	$-366 \pm 95$	$2.03^{+1.08}_{-1.05}$	$410^{+17}_{-16}$	$4012^{+1327}_{-564}$	$5084^{+16571}_{-2980}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

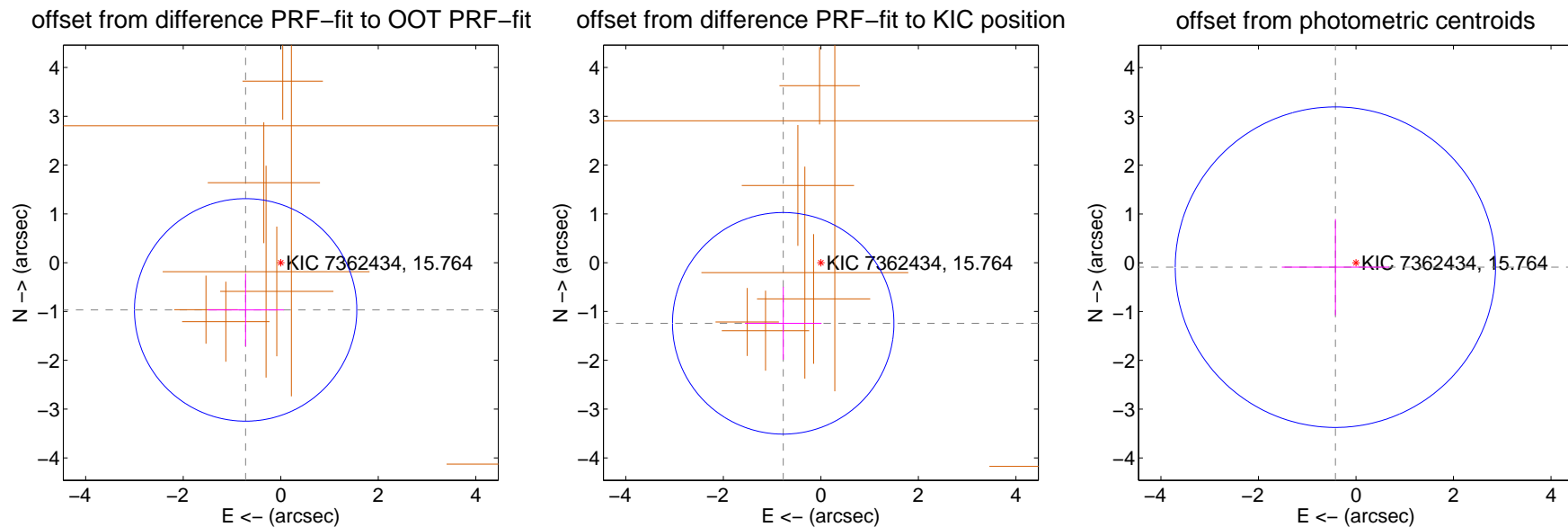
## DV Centroid Data

Supplemental centroid analysis for 007362434-02. Kepler magnitude: 15.76. Transit SNR 8.34

There are 0 quarters with good PRF difference image offsets

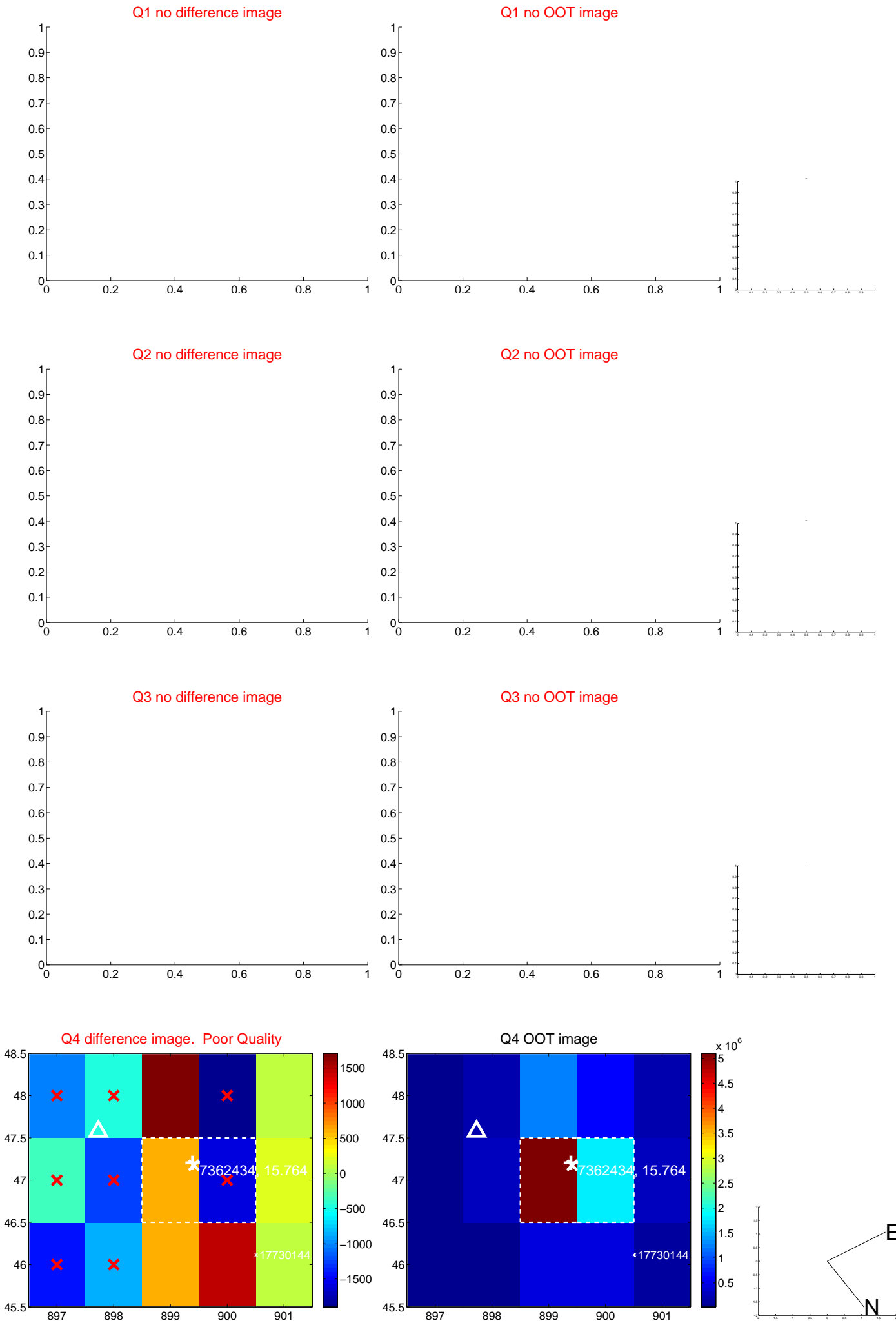
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.206 \pm 0.760$	1.59	$0.720 \pm 0.785$	$-0.967 \pm 0.746$
PRF-fit source offset from KIC position	$1.463 \pm 0.757$	1.93	$0.772 \pm 0.785$	$-1.242 \pm 0.746$
photometric centroid source offset	$0.43 \pm 1.09$	0.39	$0.42 \pm 1.10$	$-0.09 \pm 0.99$

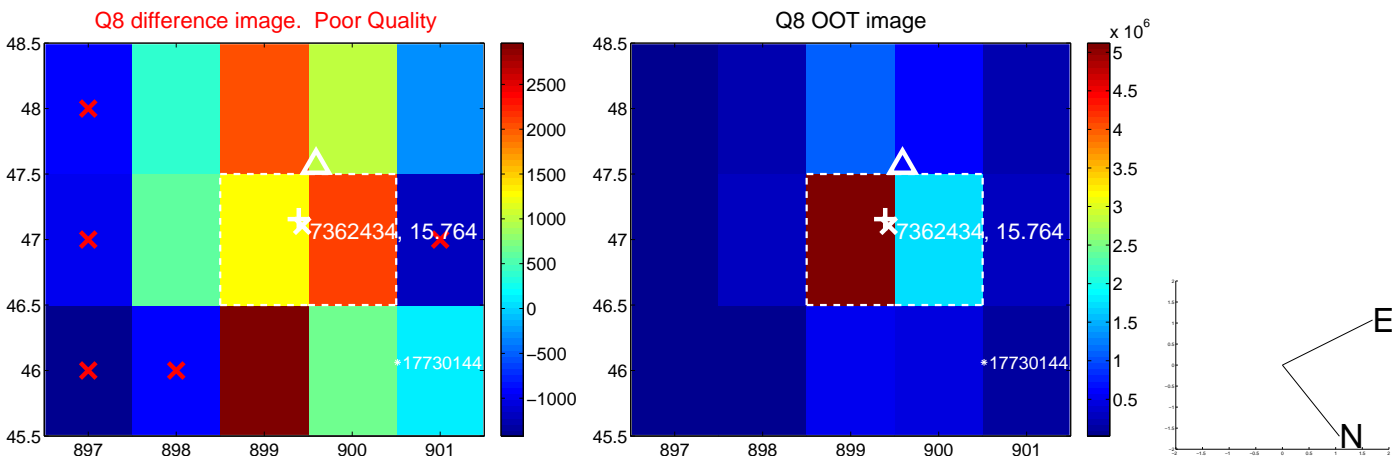
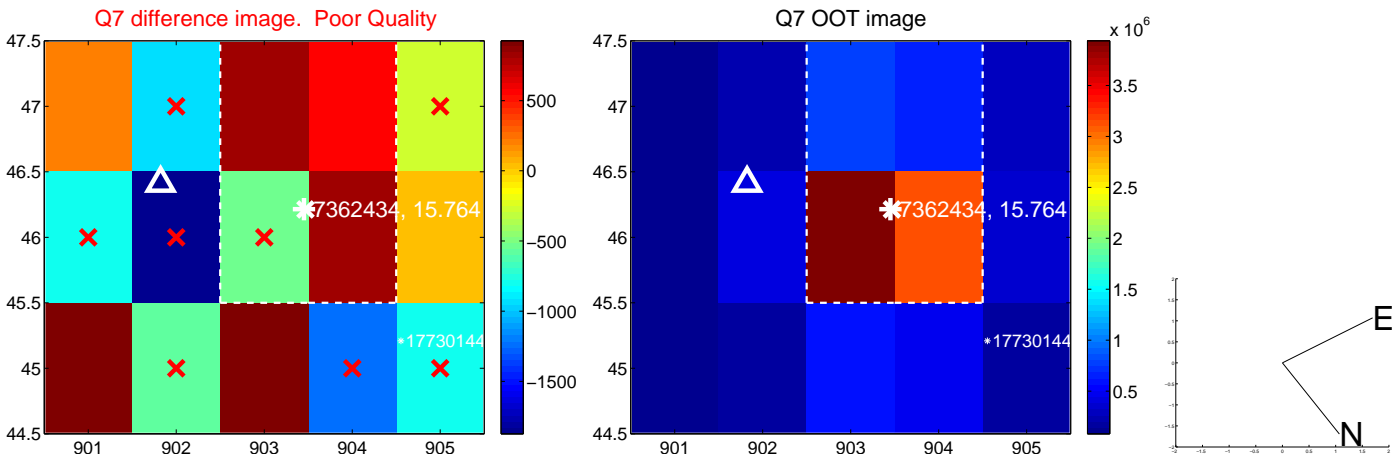
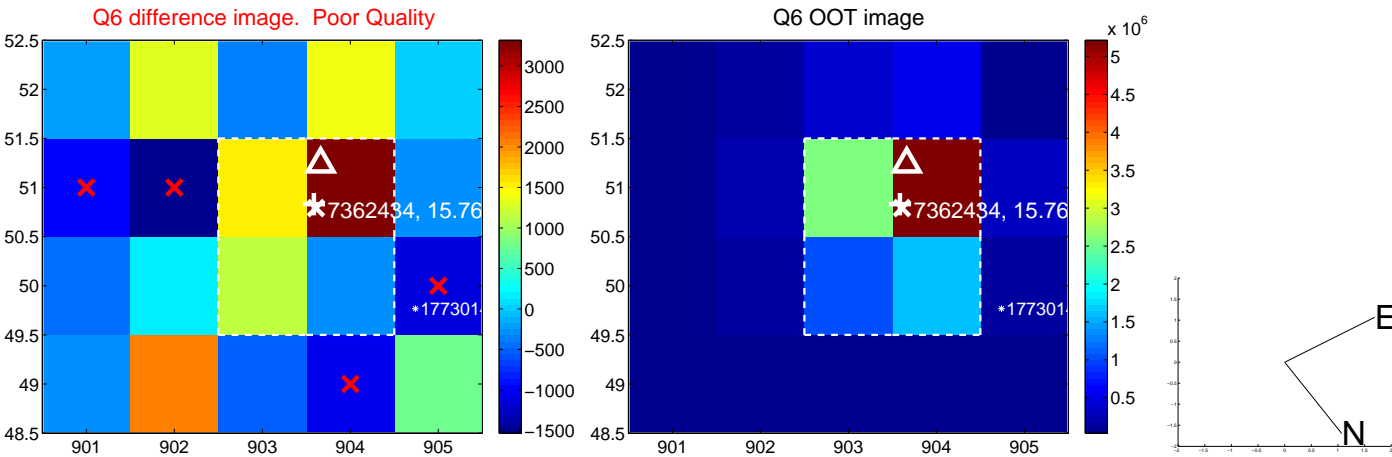
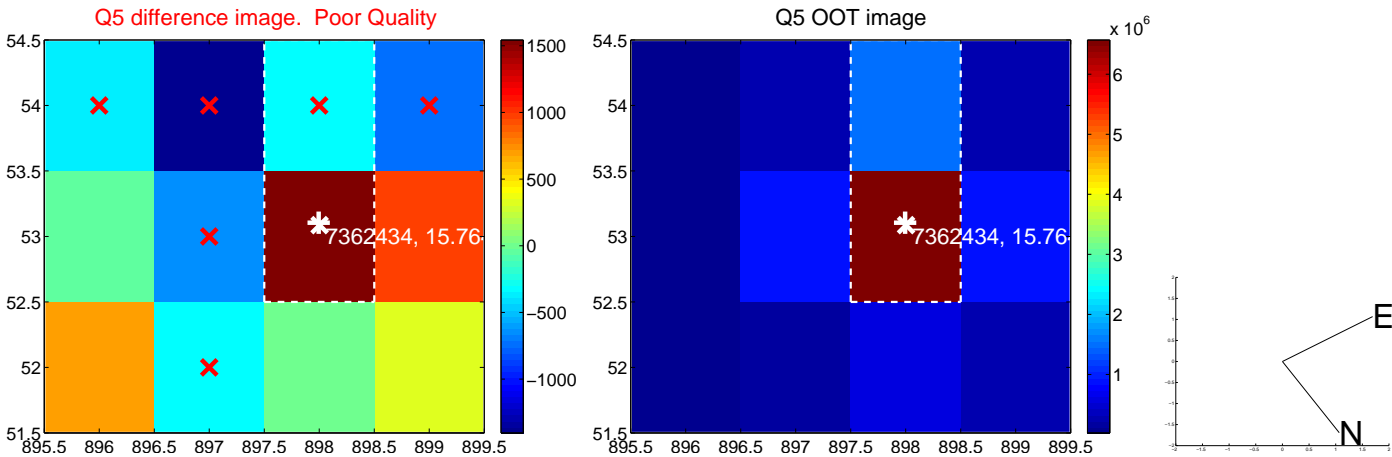


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

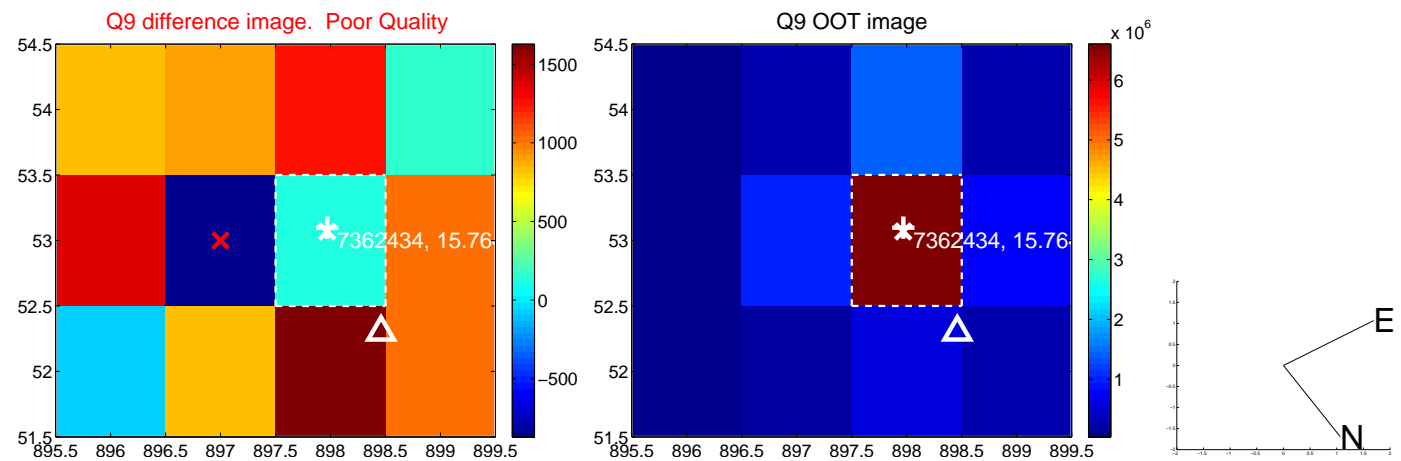


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

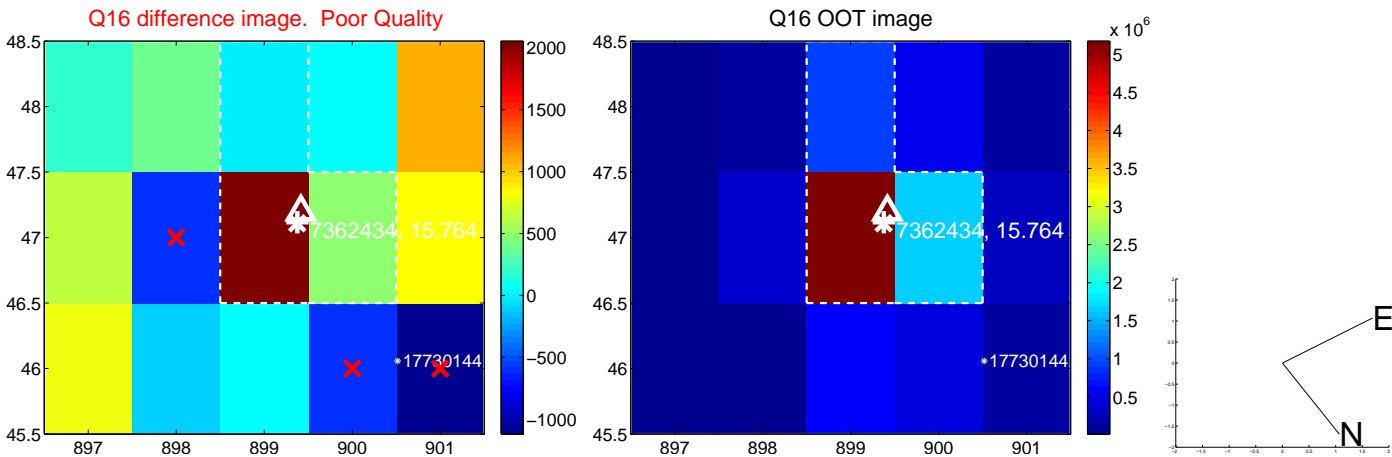
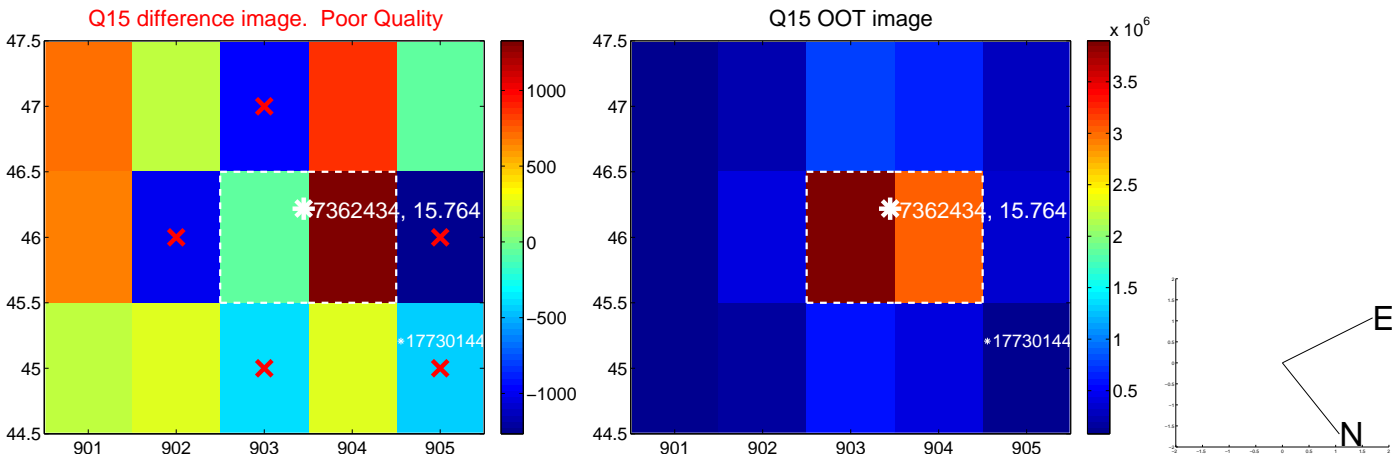
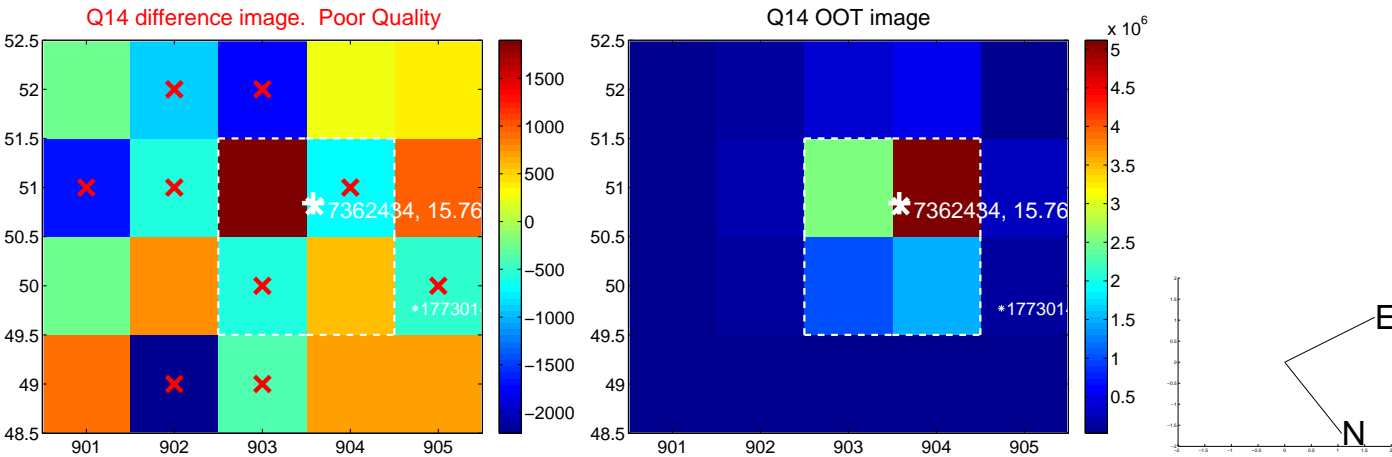
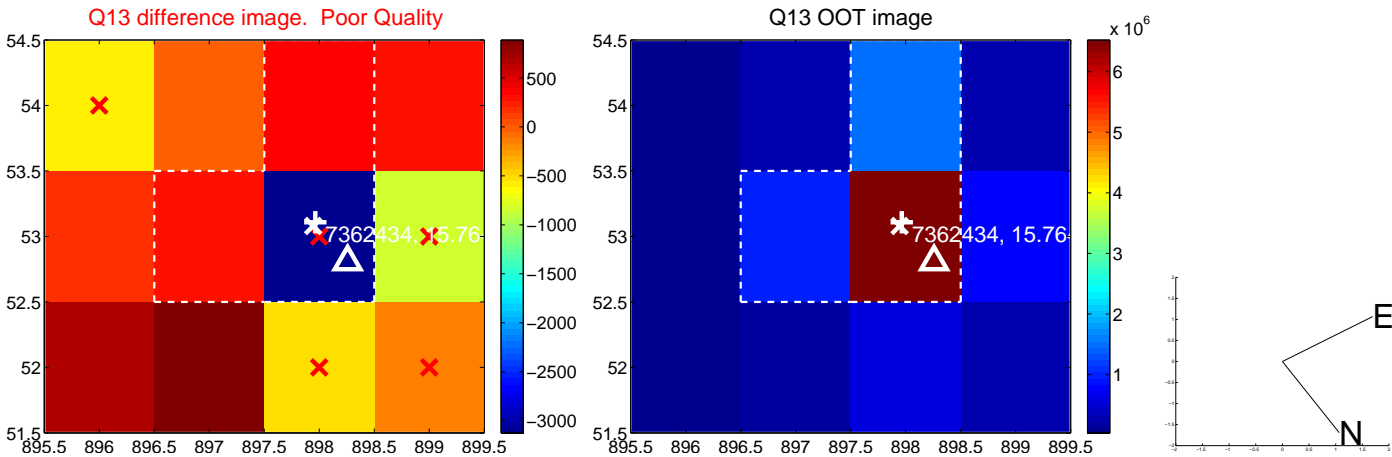




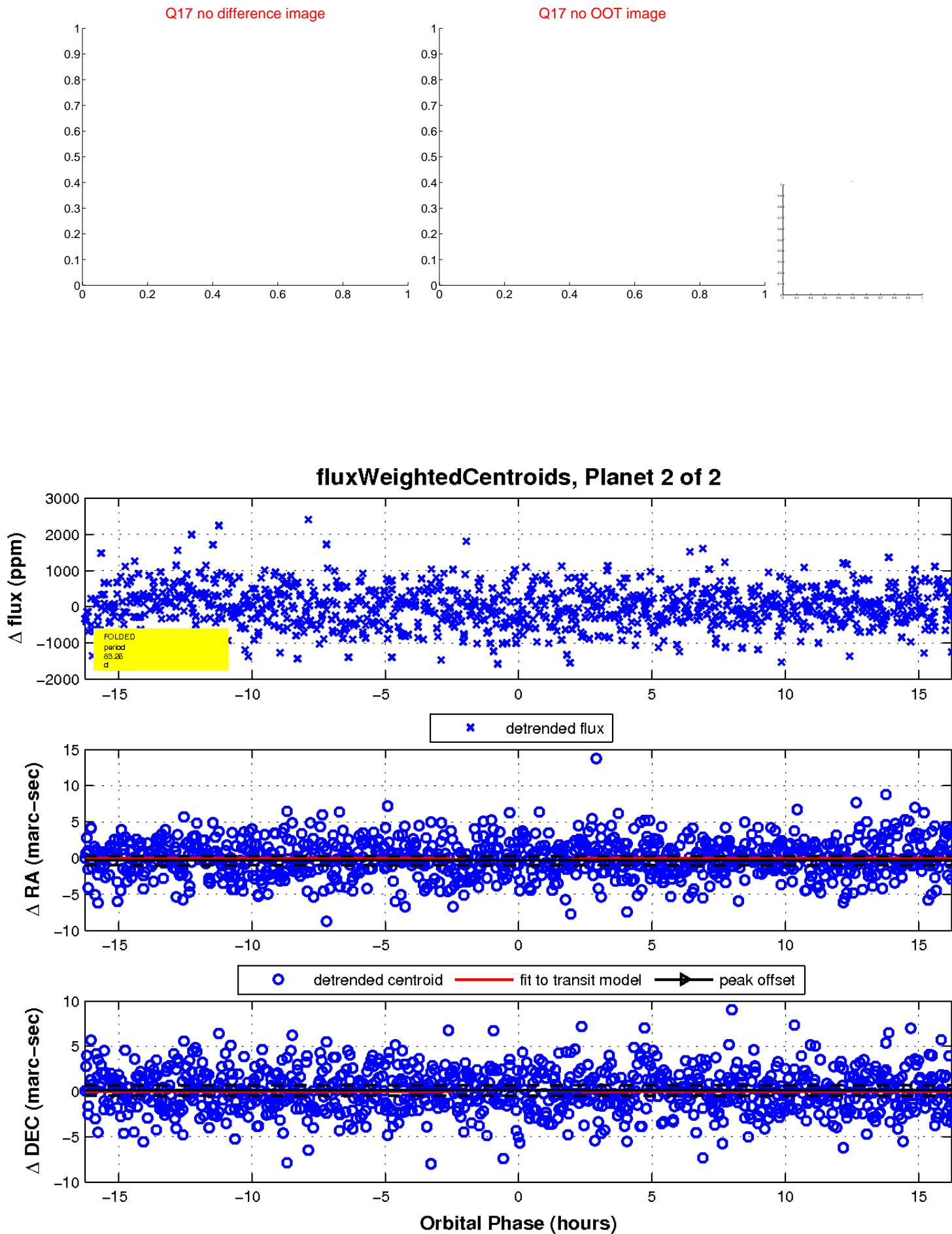
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

